The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 91, NO. 21 CHICAGO, ILLINOIS NOVEMBER 24, 1928

OBSTETRICS AND GYNECOLOGY IN PUBLIC HEALTH PROGRAM *

JENNINGS C. LITZENBERG, M.D.
MINNEAPOLIS

An annual address implies a constructive message "for the good of the order." To this end I shall discuss some weak points in our public health program. It would be more pleasing and easier to consider the many achievements of research and practice in our field, but there are too many important, unsolved questions to permit indulgence in self gratulations.

I shall have time only to consider our two most important problems; one in gynecology and one in obstetrics; namely, cancer of the uterus and maternal mortality, both real public health questions. Enough facts and procedures are known to reduce the deaths of women by thousands every year if the profession would only apply the knowledge it already has. Why, in the name of humanity, it does not or will not is an enigma.

CANCER OF THE UTERUS

Cancer is appallingly on the increase because its etiology baffles discovery, advances in treatment do not keep pace with the growing incidence, early diagnoses are not made and, in general, prevention seems hopeless.

Early diagnosis and treatment give the greatest hope for cure of cancer in any location, but this is not always possible on account of the obscurity of the early symptoms and the inaccessibility of the growth. For the same reason prophylaxis is next to impossible. In cancer of the uterus, however, the tumor is practically external and is easily accessible for examination, the symptoms appear early and prophylaxis may be possible. Yet physicians are failing to attach sufficient importance to the early signs of uterine cancer, such as irregular menstruation, intermenstrual bleeding and chronic discharge, especially near the menopause. Bleeding or discharge after the climacteric nearly always means cancer. If more physicians would educate the women to have periodic examinations, these early signs of cancer would not escape detection.

When the patient has symptoms which are not definite but are suggestive, waiting for distinct symptoms is too often the policy. During this wait the disease frequently becomes incurable. When suggestive symptoms arise, a biopsy and diagnostic curettage should be done forthwith, because our chief hope of cure is in early diagnosis followed by immediate treatment.

Delay in treatment, even of a week, affects the cancer mortality. We have been shocked at the Memorial Cancer Institute, at the University of Minnesota, to find that after cancer has been suspected by the physician, or even diagnosed, there has been a delay of weeks or months. Twenty-five per cent of entering patients have been examined by physicians several months before admission, when the diagnosis should have been made.

At the Huntington Memorial Hospital, it has been found that the mortality rate of cancer of the cervix is increased 4 per cent a week. It doesn't take long to become incurable. Delay means death.

Cancer of the cervix is one exception to the general hopelessness of prevention, for the "precancerous" condition is known and offers considerable hope of prophylaxis. If any cancer can be prevented, it should be cancer of the cervix, for the one established etiologic factor is that cancer occurs only at sites of chronic irritation, as witness the testimony of Bloodgood, who says "Cancer never begins in a healthy spot," and of William J. Mayo, who puts it in another way: "No one has yet seen a cancer which was not preceded by chronic irritation." No malignant growth is more constantly and evidently antedated by precancerous pathologic changes than cancer of the uterine cervix. Less than 5 per cent occur in women without it.

Because leukorrhea is the commonest gynecologic symptom, physicians and women alike seem to view it with that "familiarity which breeds contempt"; yet it indicates cervical infection and therefore chronic irritation, the antecedent of cancer.

Birth injuries cause ectropion, which exposes the cervical glands to infection, with resultant profuse mucous discharge, followed by erosion, hyperplasia and hypertrophy of the whole cervix, nabothian cysts, blood and lymph stasis and, most important of all, epithelial cell proliferation, which is only a step from cancer.

In this pathologic picture, the stage is all set for the entrance of that unknown factor which determines whether or not cancer shall occur. As Mathews says, "Let every cervicitis be approached, not as a cervical catarrh, or an hypertrophy, or laceration, but as the prologue of an epithelial drama whose curtain may be a malignant death."

Every physician should remember that cancer of the cervix is practically an external growth which, from its very inception as a chronic hyperplastic cervicitis, develops under the eye and which may be cut short before reaching the malignant stage by removing the cause of the chronic irritation.

The diagnosis and treatment of cervicitis are easy. The tragedy of the situation is that such simple procedures are so widely neglected. The best treatment is the "stripe" cauterization method of Dickinson, introduced nearly a quarter of a century ago but still neglected.

* Chairman's address, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

Because of its simplicity and the small amount of pain, the procedure can usually be carried out in the office. Operations on the cervix will be obviated by this simple procedure in most cases. More than 80 per cent of infected cervices will be cured and nearly all will be benefited by the cauterization.

If cancer cannot grow where there is no chronic irritation, then from 80 to 90 per cent of women could be made immune to cancer of the cervix. Too many physicians are neglecting the infected, lacerated cervix.

The specialist sees relatively few cases, the family physician many. Therefore the early diagnosis and prevention of cancer of the cervix uteri is distinctly the duty and great opportunity for service of the family physician.

TABLE 1.—*Deaths in the United States* *

	1915	1925	1915	1925	Change of Rate in Ten Years	
Puerperal deaths, total	15,260	17,190	15.2	14.9	— 0.3	— 2%
Puerperal infection	6,325	6,345	6.3	5.5	— 0.8	—11%
Eclampsia	4,016	4,845	4.0	4.2	+ 0.2	+ 5%
Cancer of female generative organs	12,148	15,690	12.1	13.6	+ 1.5	+12%
Tuberculosis	146,303	97,910	145.8	86.6	—59.2	—40%
Early infancy	77,207	69,337	76.9	60.1	—16.8	—20.5%
Prematurity	43,272	53,800	43.1	47.5	+ 4.4	+10%
Birth injuries	8,835	11,652	8.8	10.1	+ 1.3	+14.8%

* Figured on the basis of the rate per hundred thousand of population of the registration area.

If he would help the propaganda for the periodic examination, he would see ten women where he is now seeing one, and he could educate them to the fact that leukorrhea is always potentially a dangerous sign because it is a symptom of the condition which is the forerunner of cancer.

If he would properly treat all infected, lacerated cervices, he would materially reduce the incidence of cancer. If he would heed the early signs of cancer, take biopsies and curet for diagnosis, cancer would be detected earlier; and if he would see that there is no delay in treatment, more cures would result and we should begin to see a reduction in the mortality from uterine cancer instead of the present appalling increase.

MATERNAL MORTALITY

There is no excuse for the present high death rate in childbirth. If the medical profession could only be induced to apply the knowledge it already has, the maternal mortality would be reduced two thirds, and ten thousand and more mothers would be saved to their families and to the community.

The two principal causes of maternal mortality are infection and eclampsia, both almost wholly preventable. In 1925 there were in this country 17,190 puerperal deaths, of which 11,180 were due to sepsis and toxemia.

By application of the simple requirements of care during pregnancy and asepsis at delivery, thousands of these women need not have died. They died from neglect. It is high time that the medical profession was awakening to the deplorable situation and that the individual physician take on himself the responsibility that is his. By prenatal care, eclampsia can be almost entirely eliminated, to say nothing of the abortions, premature births and stillbirths that may be prevented. Nevertheless, only a small percentage of pregnant women receive such care because physicians are not insisting on it.

I know that many, especially country physicians, say the women won't come for it. If they won't, it is the fault of the practitioner—he fails to educate them to the importance of it. I know numbers of rural physicians who are proving that antepartum care can be carried out in country practice just as thoroughly as in city prenatal clinics. They tell me that the farmer's wife appreciates it, that she will come regularly for her examinations, and that it has been the greatest single factor in building up a good practice.

No physician has a right to accept women for confinement if he will not give them prenatal care, and if he does not, he belongs to the class who are causing the high maternal mortality. Compared to other conditions in the public health program, it is disgraceful.

The total maternal death rate in the decade 1915 to 1925 improved only 2 per cent, while the mortality from tuberculosis was reduced 40 per cent, as shown in the accompanying tables. Puerperal infection, a preventable condition, took the awful toll of 6,325 lives of mothers in the 1915-1925 decade, a reduction of only one in 100,000 of the population. The mortality from eclampsia, almost entirely avoidable by prenatal care, increased 5 per cent and cost 4,845 lives, sacrificed by neglect.

Because of the lack of prenatal care, mothers die in childbirth and babies are born dead or die in the first week of life. One of the outstanding accomplishments of prenatal care is the prevention of prematurity, stillbirths and deaths during the first week of life; yet because the medical profession will not generally adopt this life saving procedure, prematurity increased 10 per cent, causing 53,800 deaths of the innocents in 1925, 1,528 more than in 1915.

While these appalling increases have been going on, the propaganda for child welfare has decreased the infant mortality after the first week of life 20.5 per cent. Why will physicians not heed the propaganda for maternal welfare?

Another astounding fact is the great increase in baby deaths from birth injuries, which jumped from 8,835 in 1915 to 11,652 in 1925, an increase of 14.8 per cent. These figures should be quite sufficient argument against the present-day mania for interference with labor by the injudicious employment of forceps, version and cesarean section. This increase in deaths from birth injuries of nearly 15 per cent is a stunning rebuke to those impatient physicians who are in a hurry to get home to bed,

TABLE 2.—*Deaths in Minnesota*

	1916	1926	Change of Rate in Ten Years	
Maternal mortality	5.44	5.80	+ 0.36	+ 6%
Puerperal infection	39.2	28.2	— 1.00	—29%
Eclampsia	29.3	24.9	— 4.4	—15%
Infant mortality	69.4	57.3	—12.1	—17%
Prematurity	27.3	30.7	+ 3.4	+12%
Birth injuries	4.2	7.8	— 3.6	+85%

to the office or to a golf game. As Levy says, "they save time but deal death."

Cesarean section is much more dangerous than is generally supposed.

In two of our largest cities the maternal mortality was 16.1 per cent in one and 19 in the other; 11 and 18.9 per cent of the babies died, and following sections for eclampsia 41.5 and 42.7 per cent of the mothers perished. Comment is unnecessary.

In childbirth, as in cancer, the obstetrician cares for the few and the general practitioner the many, so here again is the family physician's great opportunity for service and life saving.

Maternal and early infant mortality among those who attend prenatal clinics and are delivered in well conducted maternity hospitals has shown great improvement, and yet the general maternal mortality and infant

V 91
1928

deaths from prematurity and stillbirths have not been reduced, and the mortality from birth injuries has been increased almost 15 per cent, which can be reduced 75 per cent by sane obstetrics. It is no uncommon experience for teaching maternities to go for years without a death from eclampsia or sepsis, yet the mortality from sepsis from 1915 to 1925 was reduced only 2 per cent and that from eclampsia was increased 5 per cent. Seventy per cent of all maternal deaths are due to these two conditions.

Injudicious intervention not only injures babies and mothers but is a prolific source of infection. In Massachusetts, 59 per cent of the deaths from sepsis followed operative delivery.

If the family physician who cares for at least 80 per cent of pregnant women will give them prenatal care, diagnose carefully the position and presentation, be meticulously aseptic, quit unnecessary intervention, especially in occiput posterior positions, never do an operative delivery before complete dilatation, and at all times appreciate the dignity and high demands of obstetrics, the maternal and baby mortality will drop at once. Failing in these, he may hear from the public when it appreciates the reason for the preposterously high and undiminishing mortality—for the health of the people is the concern of the state. Then we shall probably hear the wail of "state medicine," but this will never come unless the profession brings it on itself by neglecting to apply the knowledge it already has. There are enough lives lost which cannot be saved by anything known to medical science. May no more be added to these by neglect.

BODY FLUID CHANGES DUE TO UPPER INTESTINAL OBSTRUCTION *

MONROE A. McIVER, M.D.
AND
JAMES L. GAMBLE, M.D.
BOSTON

[EDITORIAL NOTE.—This paper concludes the symposium on intestinal obstruction. In our last issue we published the papers of Dr. Foster and Drs. Orr and Haden.]

In experimental studies of the problems presented by acute intestinal obstruction, three main types of obstruction have been dealt with. First, simple blockage of the lumen of the bowel; this type may be divided into high blockage and low blockage. Second, occlusion of the loop of bowel, with or without reestablishment of the continuity of the gastro-intestinal tract. Third, obstruction of the bowel plus gross interference with its circulation. Although there is some overlapping, in general these three types of obstruction produce quite different results and therefore probably differ profoundly in their pathology and physiology. Failure to appreciate these differences is responsible for a great deal of confusion that exists in the literature on the subject of intestinal obstruction.

The data and discussion presented in this paper apply only to the first mentioned type of intestinal obstruction; viz., simple blockage of the lumen of the bowel in the upper part of the intestinal tract. It is generally agreed that it is in this type of intestinal obstruction that the largest loss of digestive secretions occurs and also the most extensive changes in the composition of the blood plasma. The literature bearing on these points may here be briefly reviewed. In 1912, Hartwell and Hoguet [1] showed that dogs with high intestinal obstruction (simple blockage of the bowel) could be kept alive for several weeks if given, by subcutaneous injection, large quantities of salt solution. Unless so treated, the animals died within from four to six days. They believed that the efficacy of this measure consisted in sustaining the water content of the body, and advanced the theory of dehydration as the cause of the symptoms in this type of intestinal obstruction. In 1920, MacCallum and his co-workers [2] showed that in experimental pyloric obstruction the blood chlorides are lowered and the alkali reserve is increased. In 1923, Haden and Orr [3] also found a lowering of blood chlorides in high intestinal obstruction, and confirmed Hartwell's experiments demonstrating the efficacy of salt solution in prolonging the life of animals, but advanced the theory that this effect is due to a neutralization by chloride ion of some toxin absorbed from the obstructed intestine.

THE MECHANISM OF DEHYDRATION

In papers appearing in 1925, Gamble and Ross,[4] and Gamble and McIver [5] regarded the loss of sodium and chloride ions as largely responsible for the fatal effects of high intestinal obstruction; for, while agreeing with Hartwell and Hoguet [1] that the death of the animals was due to dehydration, they considered the dehydration the result of the loss of these electrolytes, using here the general physiologic concept that the volume of a body fluid is sustained by its total ionic content. The substances which are of chief importance in supporting the volume of the blood plasma and of the interstitial body fluids are sodium and chloride ion. The reason for this is, simply, that these two substances are quantitatively the chief factors in the total ionic content of these fluids, as may be seen by reference to the diagrams describing the acid-base composition of the body fluids given in chart 1.[6] It may be noted that, according to the third diagram in the chart, sodium and chloride ion are present in relatively small amounts in intracellular water. The significance of this fact will be referred to presently. That these two substances are also the chief inorganic factors in the composition of the digestive secretions is shown by the diagrams in chart 2. These diagrams are constructed from data which we have recently obtained from specimens of digestive secretions collected from animals by the methods of Pavlov and others.[7] The total fixed base in these secretions (B in the diagrams) is, as in the case of the blood

* From the Departments of Surgery and Pediatrics, Medical School of Harvard University.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

1. Hartwell, J. A., and Hoguet, J. P.: Experimental Intestinal Obstruction in Dogs, with Especial Reference to the Cause of Death and the Treatment by Large Amounts of Normal Saline Solution, J. A. M. A. **59**: 82 (July 13) 1912.

2. MacCallum, W. G.; Lintz, J.; Vermelye, N. H.; Ligget, T. H., and Bras, E.: Bull. Johns Hopkins Hosp. **31**: 1 (Jan.) 1920.

3. Haden, H. L., and Orr, T. G.: J. Exper. Med. **37**: 365 (March) 1923.

4. Gamble, J. L., and Ross, S. G.: J. Clin. Investigation **1**: 403 (June) 1925.

5. Gamble, J. L., and McIver, M. A.: J. Clin. Investigation **1**: 531 (Aug.) 1925.

6. The data of J. L. Gamble, S. G. Ross and F. F. Tisdall (J. Biol. Chem. **57**: 633 [Oct.] 1923) were used in constructing the blood plasma diagram. The spinal fluid values here used are from a recent paper by B. Hamilton (J. Biol. Chem. **65**: 101 [Aug.] 1925). The diagram representing the acid-base composition of muscle juice is probably to some extent incorrect as regards the values for the factors of acid equivalence, satisfactory measurements being not yet at hand. Fragmentary data exist which indicate that the spinal fluid and muscle juice values are, respectively, at least roughly representative of the acid base composition of interstitial and of intracellular body fluids.

7. Gamble, J. L., and McIver, M. A.: J. Exper. Med., to be published.

plasma, composed almost entirely of sodium. A diagram of the composition of the blood plasma (of the cat) is also included in the chart in order to make clear the fact that the digestive secretions contain fixed base and chloride ion in amounts which are appreciable in terms of the plasma content of these substances. The inorganic substances in the digestive secretions are, of course, derived from the plasma. Under ordinary circumstances they are in great part returned to the plasma

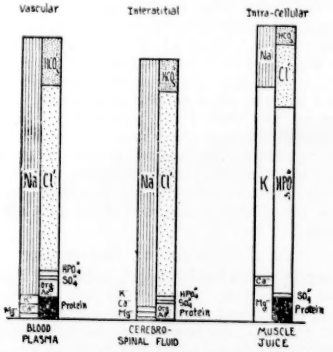


Chart 1.—Acid-base composition of body fluids: These diagrams are constructed from average values for the individual factors expressed in terms of acid-base equivalence; i. e., as cubic centimeters of tenth normal solutions per hundred cubic centimeters of fluid. The base factors are superimposed in the left hand and the acid factors in the right hand column of each diagram. They represent, as is actually the case, a structure composed not of salt but of individually sustained concentrations of ions. The exact acid-base equivalence indicated by the equal height of the two columns is obtained by adjustability of the bicarbonate ion concentration (HCO'_3) to any change elsewhere in the structure.

following the periods of digestive activity, and there is also abundant replacement from the food intake. Evidently, if there is interference with reabsorption of them, as is the case in the presence of pyloric or high intestinal blockage, a continuous loss from the blood plasma will occur. According to the conception which is here being used, the consequent depletion of the total ionic content of the plasma and of the interstitial body fluids will be accompanied by an approximately parallel loss of water with the result that a normal total ionic concentration tends to be sustained at the expense of reduction of volume. That is, dehydration is regarded as the result of the loss of electrolytes; and an important corollary of this view is that dehydration cannot be repaired by the administration of water alone: an attempt to restore and sustain the original volume of the blood plasma and of the interstitial body fluids must include replacement of the lost electrolytes.[8] An additional theoretical point has been brought out by Gamble and Ross;[4] viz., that loss of sodium rather than loss of chloride ion is the significant factor in determining the extent of dehydration, since the loss of chloride ion is compensated for within the body fluids by a corresponding increase of bicarbonate ion.

8. For discussion of and data illustrating parallel loss of water and electrolytes, Gamble, Ross and Tisdall may be consulted. With reference to the inadequacy of water alone for the restoration of body fluid volume, the following quotation from W. M. Bayliss (Principles of General Physiology, New York, Longmans, Greene & Co., p. 165) may be here presented: "The regulation of the osmotic pressure of the blood to a constant value is shown in an interesting way by some observations of Cohnheim. Sweat contains a considerable amount of salts. . . . Cohnheim found that he lost a certain considerable weight in this manner (through sweating) by performing a mountain ascent in hot weather. This weight could only permanently be replaced if he drank water containing sufficient salts to replace those lost. Distilled water was rapidly lost again through skin and kidneys."

EXTENT OF LOSS OF WATER AND OF ELECTROLYTES IN DIGESTIVE SECRETIONS

The enormous volume of the digestive secretions which in the course of twenty-four hours normally enters the upper part of the gastro-intestinal tract and is reabsorbed from the lower bowel is usually not appreciated. From the data which Rowntree[9] has collected from various sources, it may be estimated that for an adult the secretion of digestive fluids, taken together, amounts to between 5 and 7 liters daily. This is two or three times the volume of the blood plasma that is the immediate source of these secretions.

It has been shown that circumstances causing severe dehydration may reduce the volume of the blood plasma by one third.[10] This finding by no means indicates the actual extent to which water and electrolytes have been withdrawn. We have found that, following experimental pyloric and duodenal obstruction in rabbits, several times the total initial plasma content of water, of fixed base and of chloride ion enters the stomach during the survival period, as shown in the accompanying table. A rapid and extensive replacement of water and of electrolytes is thus indicated. The immediate source of these materials is the interstitial body fluids. Reduction of the volume of these fluids provides the familiar clinical evidences of dehydration: dryness of the skin, shrinkage of the subcutaneous tissues and, in infants, deep recession of the fontanels. It is probable that intracellular body fluids are only to

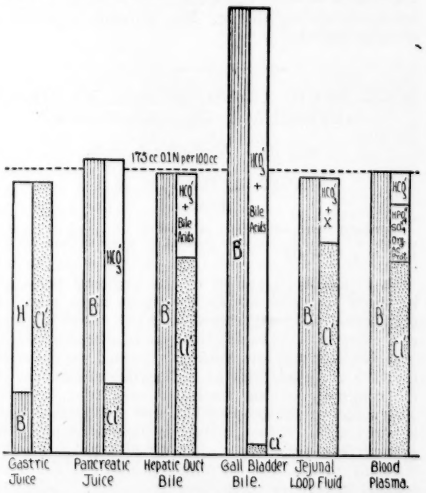


Chart 2.—Acid-base composition of digestive secretions: As in chart 1, these diagrams are constructed from measurements of the component factors expressed as cubic centimeters of tenth normal per hundred cubic centimeters of fluid, the base factors being superimposed in the left hand and the acid factors in the right hand column of each diagram. Pancreatic juice data from dog. Other data from cats.

a slight extent drawn on, for the reason that these contain relatively small amounts of the electrolytes, sodium and chloride ion, particularly required for plasma repair (chart 1, diagram of composition of muscle juice).

9. Rowntree, L. G.: Physiol. Rev. **2**: 116 (Jan.) 1922.
10. Keith, N. M.: Am. J. Physiol. **63**: 395 (June) 1923.

Obviously, this arrangement defends cell volume; and direct measurements of the water content of parenchymatous tissues from severely dehydrated animals have shown an extremely small loss.[11] The data in the accompanying table will serve to emphasize the great importance of the quantitative aspect of therapeutic attempts. They show that a considerable part of the body's content of water and of sodium and chloride ion may be rapidly lost. When similar circumstances are encountered clinically, replacement measures should be correspondingly extensive and sustained.

Estimations of Loss of Water, Fixed Base, and Chloride Ion Following Pyloric and Duodenal Obstruction, in Terms of Original Blood Plasma Content; Data from Rabbits

	Pylorus Obstructed Cc.	Duodenum Obstructed Cc.
Water lost	203	235
Initial plasma H_2O	83	77
H_2O lost ÷ initial H_2O	2.4	3.1
	Cc. Tenth Normal	Cc. Tenth Normal
Fixed base lost	270	539
Initial plasma B	140	130
B lost ÷ initial B	1.9	4.1
Chloride lost	309	265
Initial plasma Cl	85	79
Cl lost ÷ initial C	3.6	3.4

CHANGES IN THE BLOOD PLASMA CAUSED BY LOSS OF DIGESTIVE SECRETIONS

Concentration Changes Due to Loss of Water.—As a result of the reduction of the volume of the blood plasma there occurs, as might be expected, an extensive increase in the concentration of plasma protein, and a rise in the red count and hematocrit reading. That loss of water from the plasma causes physical changes in the blood, increase of viscosity, for example,[12] which must seriously interfere with its respiratory and other functions, is shown by the fact that in severe dehydration a tenfold reduction of volume flow may occur.[13] Haden and Orr [14] have recently shown a huge reduction of the oxygen content of venous blood in the presence of high obstructions.

Changes of Acid-Base Structure Due to Loss of Sodium and Chloride Ion.—The important change to be here considered is a change in the reaction of the plasma due to alteration of the bicarbonate concentration, and this in turn is referable to the relative amounts of sodium and of chloride ion withdrawn from the plasma. The latter relationship may be briefly explained with the help of the diagrams in charts 1 and 2. In chart 1 it may be seen that the sum of the acid factors in the plasma is represented as exactly equivalent to the total of fixed base. This equivalence is maintained in the presence of changes in the individual factors, by the adjustability of the bicarbonate ion concentration. In chart 2, representing the composition of gastric juice, chloride ion is seen to be in large excess of fixed base. Withdrawal of these substances from the plasma in the proportions indicated in this diagram may be expected greatly to decrease the extent to which fixed base in the plasma is covered by chloride ion; and to this extent the bicarbonate ion concentration will be increased. Actually it has been well established that continued loss of stomach secretions following experimental obstruction of the pylorus does produce an alkalosis, often of a degree sufficient to cause severe tetany. The diagrams representing the inorganic factors in pancreatic juice and in gallbladder bile show that, in complete contrast to gastric juice, these secretions contain fixed base in much greater amounts than chloride ion. The inference is thus provided that loss of these secretions will tend to reduce the plasma bicarbonate. We [15] have recently been able to verify this expectation by finding a marked degree of acidosis, as measured by bicarbonate reduction, in the blood plasma of a dog following construction of a pancreatic fistula which completely drained away the external secretion.

In the presence of upper intestinal obstruction there is obviously opportunity for loss of all these digestive secretions. The accompanying change in plasma bicarbonate has been found to be widely variable: usually there is an extension, which is often large; occasionally there is no appreciable change from the normal value, and infrequently there is a considerable reduction. According to the foregoing discussion, this variability of plasma bicarbonate is understandable as the result of differences in the relative amounts of stomach and of duodenal digestive secretions which have been lost, loss of the former tending to produce alkalosis and of the latter acidosis.

Besides the loss of gastric juice, of pancreatic juice and of bile, it is quite likely that another factor is present; viz., loss of fluid derived from the intestinal mucosa. The probable composition of this fluid is indicated by the analysis of a specimen, drained from an isolated upper jejunal loop, which is represented by means of a diagram in chart 2. We are in doubt as to whether this fluid should be regarded as an irritatively stimulated digestive secretion or as an exudate. In any case, however, it is seen to contain approximately the same amount of fixed base and of chloride ion as does the blood plasma. Loss of this fluid will cause reduction of the volume of the blood plasma and of the interstitial body fluids but should not alter the plasma chloride (or bicarbonate) concentration.

To turn our attention to the concentration of plasma chloride: From the considerations given it is evident that not infrequently in the presence of upper intestinal obstruction the circumstances are such that the loss of chloride ion is not in excess or is only slightly in excess of the loss of fixed base, in terms of the plasma concentrations of these substances, with the result that plasma chloride remains at or only slightly below its usual value, although the absolute loss of chloride ion from the plasma and interstitial fluids may have been extremely large. To use a very simple illustration of the situation: If a large part of the contents of a flask of salt solution is poured out, the chloride concentration of the solution remaining in the flask is not altered. Even when plasma chloride is found greatly reduced, the extent of reduction of concentration is by no means a measure of chloride loss, since several times the total normal plasma content may have been withdrawn, as shown in the table. A point of great practical importance to be derived from these statements is that it is entirely incorrect to regard the plasma chloride concentration as an index of the degree of dehydration and of the extent to which replacement by salt solution is required.

11. McKhann, C. F.: Personal communication to the authors.
12. Haden, R. L., and Orr, T. G.: J. Exper. Med. **44**: 419 (Sept.) 1926.
13. Marriott, W. M.: Physiol. Rev. **3**: 275 (April) 1923.
14. Haden, R. L., and Orr, T. G.: J. Exper. Med. **46**: 709 (Nov.) 1927.
15. Gamble, J. L., and McIver, M. A.: J. Exper. Med., to be published.

CONCLUSIONS: THE CAUSE OF DEATH FOLLOWING UPPER INTESTINAL OBSTRUCTION

The observations at hand, then, indicate that a continued loss of digestive secretions causes a rapid withdrawal of fixed base (chiefly sodium) and of chloride ion from the body, which is accompanied by a correspondingly extensive reduction in the volume of the blood plasma and of the interstitial fluids. There also occurs, depending on the relative amounts of sodium and of chloride ion lost, an alkalosis or an acidosis of varying degree. Can progressive dehydration and distortion of acid-base structure be regarded as sufficient cause for the symptoms and ultimate death occurring in pathologic conditions in which the outstanding feature is a continued loss of digestive secretions? To our minds this is an acceptable surmise. Continued reduction of the volume of the plasma and of the interstitial fluids must increasingly interfere with tissue respiration and with the transport of nutrient and of effete materials. Perhaps the most persuasive evidence that dehydration can be a directly fatal condition is the fact that death can be prevented and characteristic antecedent symptoms removed if the dehydration is adequately repaired by the subcutaneous administration of sufficient quantities of the lost material in the form of physiologic solution of sodium chloride. We are content to regard the fatal effects of loss of the digestive secretions such as occurs in simple pyloric or upper intestinal blockage as the result of extensive withdrawal of inorganic substances, chiefly sodium and chloride ion, from the blood plasma and the interstitial body fluids. This simple explanation is to our minds so sufficiently indicated by the data at hand as to make unnecessary the hypothesis of a toxin absorbed from the gastrointestinal tract or of the loss in the digestive secretions of some vitally important organic substance. We wish to state, however, that we regard other types of obstruction, the closed loop and obstruction with gross interference with the circulation, to represent quite different pathologic and physiologic pictures. These points have been discussed in detail by Murphy and Vincent,[16] Hartwell and Hoguet,[1] and Foster and Hausler.[17] It should be most clearly pointed out and emphasized that the clinical problem of intestinal obstruction is a broad and complicated one. The ideas expressed in this paper apply only to simple blockage high in the intestinal tract where free drainage of the secretions back into the stomach is possible. This uncomplicated type of obstruction is relatively infrequently encountered clinically. It is true, however, that the loss of secretions by vomiting or by intestinal fistula is frequently seen and forms a part, but only a part, of the picture in most cases of intestinal obstruction. What we have tried to do in this paper is to furnish a better understanding of the fundamental changes in the plasma and interstitial fluids that follow the loss of the digestive secretions.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. FOSTER, DRS. ORR AND HADEN, AND DRS. MCIVER AND GAMBLE

DR. DONALD MACRAE, JR., Council Bluffs, Iowa: I favor tube enterostomy, and now I find myself confronted by a series of dog experiments dealing with chemical theories which no doubt are of great value as an aid to enterostomy in the saving of life. However, my experiments have been limited to surgical operations on the human body over a period of thirty-five years, and I am convinced that high enterostomy has saved more lives for me and my followers than any or all other methods offered since surgical intervention was advocated. Since 1916, following Bonney and McKinnon, and prior to the establishment of sodium or the chlorides as part of our equipment, our results in the desperate cases of obstruction, whether due to infection (peritonitis), nerve influence or mechanical blocking, have been most astonishing as compared with those from all previous methods of attack. In my part of the country, the physician is seldom called early, often the roads are almost impassable, and therefore most patients are seen too late for operation, according to many authorities and textbooks. And yet, we operate on nearly all patients immediately, unless a definite localized abscess is found and then we drain the pus at our convenience. Even here, when obstructive symptoms predominate, with evidence of toxemia, we are very apt to drain the jejunum under local anesthesia. We are so firmly convinced that the toxicity of the contents of the small intestine alone, and not peritonitis, is responsible for death in the majority of cases, that I have no hesitancy in urging tube enterostomy when the abdomen is open, even in the early case, when peritonitis is evident. In the latter case, we usually close the peritoneum without drainage. Obstruction of the sigmoid may cause pain early, but no evidence of toxemia is manifest until the regurgitation passes through the cecal valve and enters the small bowel. I have come to the conclusion that when a patient has died of an acute abdominal condition, the body should not be taken to the undertaker without a catheter or tube protruding from some portion of the small intestine.

DR. JOHN B. DEAVER, Philadelphia: Although many questions are solved by laboratory experiment, clinical experience and judgment still remain the criterion for surgical intervention. Drs. McIver and Gamble referred to dehydration and the loss of sodium as factors which have been overlooked in recent communications on intoxication of intestinal obstruction. It is our custom to combat the toxic effect of absorption by forcing fluid intake by mouth, and to supply the loss of sodium by the administration of saline solution by rectum, by hypodermoclysis, or by means of dextrose and saline solution intravenously. According to Drs. Orr and Haden, the fall in chlorides in intestinal obstruction is probably due to absorption of the chlorine ion during the course of the intoxication, which may be a protective measure on the part of the body, so that in high intestinal obstruction the use of alkalis would be contraindicated. This, however, is not always supported by clinical experience. The grouping of acute intestinal obstruction, as outlined by Dr. Foster, may be rational, but to my mind it would be rather a dangerous practice in these cases, desperate as they usually are, to attempt to differentiate clinically between obstruction with and without vessel involvement. The experienced surgeon can usually tell whether the case is one of simple obstruction that will yield to what we in the Lankenau Clinic term anatomic and physiologic rest or regulation, or whether it is a case of strangulation in which, if at all feasible, operation should be done at once. I have had occasion to operate for long standing fecal impaction of the sigmoid when simply opening the abdomen and massaging the sigmoid sufficed to give relief. It is better to open the abdomen and find nothing than to open it and find too much. Resection and drainage of the proximal and distal ends, in lieu of an anastomosis, does not appeal to me. I consider the loss of the intestinal juices more harmful than the risk of an anastomosis. Of course, the earlier the operation is done, the more promising is the outcome. The early symptoms of acute obstruction, intermittent pain, nausea, inability to pass gas, and stormy peristalsis are all the indications one should wish for to warrant opening the abdomen. Usually stercoraceous vomiting indicates fatality. In the presence of nausea, in a suspected obstruction, it is our practice to lavage the stomach and, if the washings are foul smelling, to open the abdomen. This practice has saved lives that otherwise would have been sacrificed in waiting for so-called classic symptoms. Simple obstruction, without vascular derangement, that Dr. Foster speaks of, I take it, includes chiefly the paralytic form, in which the plexuses of Meissner and Auerbach are under the influence of toxins, with the result that there is dilatation of the intestinal coils subsequent to

16. Murphy, F. T., and Vincent, B.: Boston M. & S. J. **165**: 684, 1911.
17. Foster, W. C., and Hausler, R. W.: Studies of Acute Intestinal Obstruction, Arch. Int. Med. **34**: 697 (Nov.) 1924.

V 9
192

relaxation of the muscularis. This form of obstruction, as I see it, is the result of late peritonitis and toxemia. That the excessive blood changes described by Dr. Foster are responsible for death in acute obstruction I believe is true, but what is the cause of these blood changes? Toxins! In other words, is not the inanition complex synonymous with toxemia?

DR. GEORGE H. WHIPPLE, Rochester, N. Y.: The differences of opinion at present are not as acute as they used to be, perhaps because we are reaching the true solution; perhaps not. Ten years ago, when I was acutely interested in this problem, we were concerned more with the organic constituents of the blood than we are at present when the inorganic constituents are holding attention, and justly so. I think that this development is largely to be attributed to the important work of Drs. Haden and Orr. It seems to me that rapid progress is being made, not only in the understanding of the disturbed physiology and the related clinical conditions but also in the proper handling of those conditions. As a pathologist, I believe that we are seeing fewer of these cases in the postmortem room. Everything would indicate, therefore, that we are making definite progress in the study of this most important condition. I should like to bring out one point that I believe is significant as bearing on the question of intoxication, because I cannot accept the suggestion that there is no intoxication in intestinal obstruction. I cannot believe that the entire picture is explained on the basis of an inanition complex. One observation of ours has a bearing on this particular point. In intestinal obstruction in dogs there is a depressed renal function as tested by modern methods in experimental simple intestinal obstruction by Dr. McQuarrie and myself. It is easy to demonstrate that certain poisons, isolated and purified, obtained from intestinal obstruction likewise depress temporarily the renal function under controlled conditions. This, it seems to me, is a strong bit of evidence to show that there is a poison. How important one or more of these poisons may be remains for the future to determine. The disturbance in physiology, including salt metabolism, is of great importance, but there is also a tolerance to poisons which develops in the experimental animal which can be demonstrated by testing such animals after this tolerance has developed by standard poisons.

DR. H. M. TRUSLER, Indianapolis: No problem in surgery is more baffling than intestinal obstruction. Following the work of Drs. Haden and Orr, Dr. Gatch and I conducted a series of investigations. Our observations led me to endorse the view of Dr. Foster that there are essentially two types of intestinal obstruction: (1) simple obstruction and (2) obstruction plus strangulation. Unfortunately, simple obstruction is rare. It occurs characteristically at or near the pylorus, but elsewhere in the intestine an obstruction soon becomes complicated by circulatory injury. Gaseous distention alone may lead to necrosis of the bowel wall. As soon as the wall of the bowel is injured there is toxic absorption and, just as Dr. Deaver has said, the absorption of this toxin is fatal. In any case, intravenous saline therapy is valuable but the only cure is early surgical intervention. In neglected cases, however, radical surgery may be the cause of death. As Dr. Macrae has stated there are many times when simple jejunostomy or enterostomy is the only operation advisable. Concerning the chemical changes in the blood, I agree with Drs. McIver and Gamble that the mechanism is a loss of digestive secretions. I may add that Dr. Deaver is right—the dog is different from man, in some ways more than in others. He is different in that he has a high percentage of hydrochloric acid in the gastric juice. Therefore, severe hypochloremia occurs readily in the dog and not so readily in man. What are the symptoms of hypochloremia? A marked reduction of blood chlorides will produce the characteristic syndrome of gastric tetany. This tetany appears typically as a carpopedal spasm, a cramping of the hands and feet. But with a patient desperately ill, quiet in bed, this symptom may be overlooked unless the patient is stimulated or closely questioned. In babies, gastric tetany may simulate any of the toxic convulsions. The symptom of tetany appears usually as the level of sodium chloride in the blood falls below 300 mg. Between this and the normal there are various degrees of hypochloremia which may not be distinguishable from the states of shock and dehydration so commonly seen in these patients. Therefore, it has been fortunate for many patients in the past that the free use of intravenous sodium chloride solution has been an empiric practice. In the light of our present knowledge, more effective treatment is possible.

DR. WILLIAM D. HAGGARD, Nashville, Tenn.: One of the statements made by Dr. Foster touches the keynote from a clinical standpoint. He called attention to the practice of one of his colleagues in which a mortality of only 6 per cent was obtained, and the explanation was largely that that particular group of patients was seen by the practitioner himself or by his immediate associates. He contrasted this group with a similar number of patients who were referred, and the mortality in that group was the same old terrific 35 per cent that I regret to say is the portion of the average surgeon throughout the world. Some years ago I had the privilege of being the delegate to the British Medical Association, and in their surgical section a report on 3,064 cases occurring in seven London hospitals during a period of four years was submitted. The average mortality was 26.56 per cent in all types of obstruction. The highest mortality was in cases of gallstone, namely, 50 per cent; the next highest was in milignant disease. Sir William Taylor of Dublin preached early diagnosis and recognition and prompt operation in intussusception; in eighty-one cases, his mortality was 3.7 per cent. Mortality, then, is largely a question of early recognition and prompt intervention. Van Buren's collection of a thousand cases with jejunostomy and without seems to show a lower mortality in those without jejunostomy. The modern, noncontaminating and nonleaking enterostomy in long standing cases of obstructed toxic loop should add greatly to the patient's chance of recovery. In postoperative obstruction, the simplest thing is to make a jejunostomy quickly under local anesthesia. One should not look for the cause or point of obstruction or enter the operative field again if it can possibly be avoided, and one will have more recoveries by a jejunostomy without exploration than one will with exploration and an extensive piece of surgery.

DR. E. P. QUAIN, Bismarck, N. D.: Attention was called to the fact that there are several anatomic causes for chronic duodenal obstruction. I have encountered at least four in my experience. The most important one, perhaps, is that produced by the mesenteric pedicle. This is relieved by a duodenojejunostomy made on the third portion of the duodenum, below the transverse colon. The next in importance, I believe, is that produced by periduodenitis, or congenital membranes involving the second portion of the duodenum and contiguous structures. Duodenojejunostomy, if made at all for this condition, must be above the transverse colon, on the second portion, but many cases of periduodenitis are relieved by plastic operations, liberation of the adherent duodenum and implantation of omental flaps over the denuded areas. The third type of chronic duodenal obstruction is that produced by right-sided coloptosis. The colica media artery causes the obstruction. In such a case the duodenojejunostomy must be made on the right side of this artery or it will not drain the obstructed part of the duodenum. However, most of these cases are permanently relieved by radical colofixation. The fourth type is not so common, but I have seen several cases, both fluoroscopically and surgically, in which there was an excessive length of the second portion of the duodenum. In the fetal rotation of the colon the cecum seems to have crossed the small intestine a little lower than normal, so that too much duodenum has remained above the transverse mesocolon. This type is recognized by a zigzag position of the duodenum and by the writhing movements, when studied under the fluoroscope. So far as symptoms are concerned, the most difficult problem is to differentiate between chronic duodenal obstruction on the one hand, and cholecystitis and chronic duodenal ulcer on the other. The roentgenologist is the only one who can make the tentative diagnosis positive. I believe that there have not as yet been enough roentgenologists in this country who have taken the interest and the trouble to learn that there are other disabling lesions in the first, second and third portions of the duodenum besides ulcer and diverticulum. This undeveloped field invites the internist as well as the roentgenologist. The greater number of patients are relieved by proper medical and postural treatments. So far as surgical results are concerned (and I can speak from an experience with between forty and fifty duodenojejunostomies

made for the purpose mentioned, I have found this a most satisfactory and encouraging field in surgery.

DR. GOLDER MCWHORTER, Chicago: Hyperthyroidism may be a definite factor in the causation of chronic duodenal ileus. In one of our cases we could readily see the large stomach and the dilated descending and third portions of the duodenum. This was not an atonic type of ileus but a type in which hyperperistalsis was present. The obstruction appeared to be in the region of the superior mesenteric artery. This patient had had his symptoms for about two or three months, when he developed an acute exacerbation of the condition, with a loss of about 15 pounds in seven days, and it was necessary to do a duodenojejunostomy to relieve the obstruction. Three weeks later, I did a thyroidectomy. About two months after the thyroidectomy, he had gained about 90 pounds. A roentgenogram taken at that time showed the duodenum to be about normal size. When the patient was lying down, some of the barium also passed out through the duodenojejunal flexure. Six months after the operation, and five months after the thyroidectomy, the patient was accidentally drowned. Fortunately, a postmortem was obtained and we secured the duodenum, a portion of the stomach and pancreas, the superior mesenteric artery, and the root of the mesentery. No definite pathologic changes were present, at least we could not find any. With slight traction on the superior mesenteric artery there was considerable constriction at the point at which it crossed the duodenum. The flexure was not at the duodenojejunal juncture but several centimeters beyond, possibly as a result of the loop being pulled across the abdomen to form the duodenojejunostomy. There seemed to be no possibility, at least at the postmortem examination, for an obstruction to occur at the duodenojejunal flexure. Another patient with acute hyperthyroidism developed a wild delirium, with intermittent vomiting of large amounts. At the end of the delirium, he developed symptoms that were found to be due to duodenal obstruction. We could see a tumor and hyperperistalsis across the room. This was apparent at all times until the duodenojejunostomy was made. After becoming rational, he ate very large quantities of food, with severe vomiting after a few days. Shortly afterward, we examined him fluoroscopically during an exacerbation. He was placed under very careful medical management, including changes of position. The dilatation persisted but he did not always vomit, although after every feeding, in spite of treatment, we could see the tumor. Then he developed an exacerbation which led to a rapid loss of about fifteen pounds of weight in one week, when I performed a duodenojejunostomy. Three weeks later, I performed a subtotal thyroidectomy and the patient left the hospital in three weeks with a minus 1 metabolism. He gained 90 pounds within the next five or six weeks, reaching almost normal weight, without further abdominal complaints.

DR. M. A. MCIVER, Boston: In the management of a case in which the digestive secretions have been lost by vomiting or through an intestinal fistula, the problem arises as to how much fluid we should return to the body in the form of physiologic solution of sodium chloride. I want to caution against putting too much stress on any one laboratory finding. Of course, the blood chlorides are important, but, as we pointed out in our paper, their measurement does not indicate the degree of dehydration. Hematocrit determination helps somewhat. But none of these laboratory tests give the whole story. The laboratory observations must be correlated with the clinical picture. One very simple thing that should be done is to keep an accurate record of the intake and output of fluid; but when considering the total amount of fluid lost from the body one should remember that in addition to the volume of fluid in the urine and digestive secretions, a considerable amount is lost in the sweat and by evaporation from the lungs.

DR. W. C. FOSTER, Portland, Ore.: If it is possible to have an animal live for twenty-eight days with a simple occlusion when there is not very much vomiting, it does not appear that there is a great deal of intoxication. If the conditions are comparable to those found in inanition, of course that view is perfectly justifiable. When there is a vascular derangement of any consequence, the type of vomiting is altogether different from that in a simple occlusion. The vomitus is not watery; it is very thick and tenacious. So whenever strangulation is present, with death usually occurring within forty-eight hours, hypochloremia is not a very prominent feature. Of course, one should give plenty of fluids, but the fact of the matter is that in the presence of a strangulation and the absence of bacterial flora, that is in a sterile segment of bowel, it is possible to produce death in from nine to eleven hours. The crux of the whole situation in simple obstruction is to operate before there is a chance to produce an abnormal preoccluding segment, and in the second case to operate quickly to obviate the production of shock, or, if the strangulation is not so severe, that of intoxication.

STREPTOCOCCI IN THE SPINAL FLUID IN ACUTE EPIDEMIC POLIOMYELITIS

PRELIMINARY REPORT *

EDWARD C. ROSENOW, M.D
ROCHESTER, MINN.

The present report is made at this time, before the rather widespread epidemic of poliomyelitis has disappeared, in order to afford other workers opportunity to study cases of the disease in the way in which I have studied them.

Gram-positive diplococci of varying size and shape, arranged singly, in short chains or in small clumps, have been found in stained smears, made from the sediment of the spinal fluid obtained for diagnosis in each of eighteen consecutive cases of poliomyelitis that occurred recently in an epidemic near Rochester, Minn. These organisms also have been found in the spinal fluid in each of three monkeys in which typical poliomyelitis developed following intracerebral inoculation of emulsions of glycerolated brain and cord from three patients who died. The cell counts ranged from 15 to 1,270 for each cubic millimeter of spinal fluid in the different cases. The organism was found in the preparalytic stage as early as twelve hours after the onset of symptoms, and, after paralysis had begun, as late as the fourth day of the disease. From each of two patients who died, it was found in each of two specimens of spinal fluid obtained during life and in the spinal fluid of each patient at necropsy. Control smears were made of each of the spinal fluids obtained from nine clinically suggestive cases, but in all the fluid proved to be free from cells. Further control smears were made of fifteen spinal fluids obtained for diagnostic purposes from patients with syphilis, multiple sclerosis, tumor of the brain and other diseases of the central nervous system. In none of these were diplococci demonstrable in smears or on culture.

The fluids for centrifugation were placed in small test tubes or pipets and centrifugated at 2,000 revolutions a minute for from fifteen to twenty minutes. The clear supernatant fluid was then decanted or pipetted off. Most of the lag fluid was removed by inverting the tubes on sterile filter paper. Smears of small size were then made from the extremely small portion of fluid that was left. Before the smears were made, this fluid and the sediment were thoroughly mixed by pipetting in order to make sure that the organisms were not left behind, adhering to the wall. Painstaking effort was made to exclude every possible extraneous source of organisms. The specimens were obtained with as little exposure to the air as possible and were taken directly to the laboratory. The organism was demonstrated

* From the Division of Experimental Bacteriology, the Mayo Foundation.

in smears of the sediment of spinal fluid, preserved with 0.2 per cent phenol (carbolic acid) in stoppered test tubes kept at room temperature, forty-eight hours after the spinal fluid had been withdrawn. Likewise, diplococci in various stages of disintegration were found in specimens that had been kept in the refrigerator for forty-eight hours. The test tubes, pipets and slides were from fresh stock, and were specially prepared by thorough washing and prolonged treatment in potassium bichromate-sulphuric acid cleaning mixture. The smears were fixed on the slides by heat, by methyl alcohol, and by other fixatives. In order to be sure that the organisms found could not possibly have been present in the stains, various staining solutions were used and smears from positive and negative cases were made and stained on the same slide. The smears from positive cases showed the organism; smears from the others did not. Single cocci, usually somewhat elongated, were sometimes found together with the diplococci, but bacilli never were found.

Organisms were not found in the spinal fluid obtained from any of the three monkeys before injection of the virus. However, organisms were demonstrated in the fluid obtained after the symptoms of poliomyelitis had developed. This positive result was obtained in three punctures of one monkey and in each of two punctures of the other two.

Extreme difficulties have been encountered in the cultivation of the organisms from the spinal fluid. All primary cultures in ordinary mediums proved negative, but there was undoubted growth in primary culture of organisms obtained from all but three of the eighteen patients. This result was obtained when the spinal fluid, or only the sediment, was inoculated into a concentrated, autoclaved, extract of yeast rendered slightly alkaline to litmus after sterilization (one part of compressed yeast to three parts of distilled water). Less often growths were obtained in the spinal fluid, when one part of the extract of yeast was added to ten parts of the fluid. In the latter mixture, marked clouding due to the growth of typical, short-chained streptococci has occurred within eight hours. In some instances, however, all subcultures proved negative and the clouded mixture became water-clear and free from demonstrable organisms on further incubation. By repeated attempts, subcultures in yeast extract, in dextrose-brain broth, in soft dextrose-brain agar, in blood agar, in ascites-tissue fluid and in ascites-tissue agar have been successfully obtained from the spinal fluid of five patients during life, of two patients after death and of each of three monkeys in which typical poliomyelitis developed following intracerebral inoculation of virus from three fatal human cases. Moreover, the streptococcus has been isolated from the brains and cords of the three patients, and from the two monkeys that died of poliomyelitis. The third monkey is still living. Green-producing streptococci were isolated usually in pure culture from the brains and cords of rabbits that succumbed to intracerebral injection of diluted suspensions of nasopharyngeal swabbings. These strains, as well as those isolated from the spinal fluid of patients and of monkeys during life and those isolated from the spinal fluid, brains and cords of patients and of monkeys after death, are morphologically, culturally and immunologically alike.

The freshly isolated strains of streptococci, like those obtained in previous epidemics, produce in rabbits flaccid paralysis and other symptoms which I have come to regard as more or less characteristic of poliomyelitis in these animals. The organisms are agglutinated specifically, by the hyperimmune poliomyelitis antistreptococcus serum. This serum has been used again in treatment and it seemingly has had curative effects on patients whose spinal fluid has now been shown to contain this organism.

It is believed that the cases studied in this epidemic are not different from those of other epidemics as regards the presence of this organism and that intensive effort will reveal the presence of the organism. A more cursory examination revealed diplococci in the spinal fluid of several patients in the epidemics of 1921 and 1925, as well as in the spinal fluid of two monkeys in which poliomyelitis developed following inoculation with virus obtained in those epidemics.

PROGRESS OF HEALTH WORK IN THE MISSISSIPPI FLOOD AREA*

CHARLES N. LEACH, M.D.
NEW YORK

The advancement of organized health work in the United States has been largely accelerated by the appearance of widespread epidemics of communicable disease and the occurrence of national calamities, such as that which visited the Mississippi Valley in the spring of 1927.

The tragic loss of life resulting from uncontrolled disasters and epidemics stimulates a social consciousness to the appreciation of the value of preventive medicine. Such an awakening during the period of the emergency following the Mississippi flood resulted in whole-hearted and intelligent cooperation of flood sufferers with the relief agencies. Out of this understanding of the value of public health work grew a popular demand for permanent health protection measures.

As a national emergency relief institution, the American Red Cross, with the aid of the United States Public Health Service, Coast Guard, Army, Navy and several state health organizations carried through a relief program, which emphasized food and shelter, water purification, safe disposal of human waste and immunization against typhoid and smallpox. Approximately one third of the million persons affected by the inundation were cared for in 149 Red Cross refugee camps. During this period of emergency relief, approximately 500,000 complete typhoid immunizations were administered and 140,340 persons were vaccinated for smallpox. To provide for the safe disposal of human waste, 6,449 pit privies were constructed.

Ample evidence of the value of adequate local health service in meeting emergency conditions was afforded by the few full-time county units in the flood area that were in operation at the time of the catastrophe. In this entire region prior to the inundation there were only eleven such counties.

The ideal health organization for the rural counties embodies full-time efficient health service conducted by a staff resident in the area, supervised and subsidized by the state health department but supported in great part from local official sources. The personnel of a typical county health unit varies with the population,

* From the International Health Division of the Rockefeller Foundation.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

the budget and the nature of the problems to be met. The director is expected to be a full-time physician with special public health training, and a subordinate personnel of one nurse for each 10,000 of population, one sanitary inspector for each 20,000 of population, and one office assistant. It was suggested that this type of local health service would prove especially useful during the period following emergency relief and that a large percentage of the counties organized at this time might well support permanent health units.

In June, 1927, health work in the lower Mississippi Valley entered a new phase in its development. At a conference in New Orleans the United States Public Health Service, the state health officers of the seven states affected by the flood, the American Red Cross and the Rockefeller Foundation worked out a joint program. The object of this meeting was to formulate plans to provide the benefits of full-time local health service in more than 100 counties. A budget of $1,250,000 was found necessary to carry the work through a demonstration period of eighteen months. This fund was raised by appropriations from the flood states, the counties, the United States Public Health

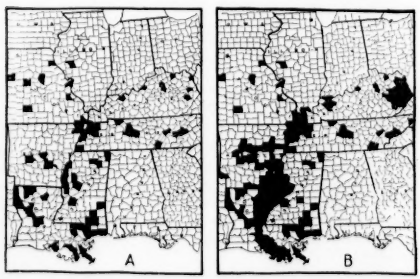


Fig. 1.—County health units in the Mississippi Valley: *A*, April 1, 1917; *B*, May 1, 1928.

Service and the Rockefeller Foundation. Appropriations for the first twelve months of operation are given in table 1.

TABLE 1.—*Appropriations for First Twelve Months of Operation*

United States Public Health Service	$282,645.00
Rockefeller Foundation	235,224.17
Counties	182,460.00
States	176,862.50
Other agencies	12,600.00
Total	$889,791.67

An important element in the success of such a project was the enlistment of personnel properly trained and temperamentally suited to perform the work of the local health units. In July, 1927, in cooperation with the Mississippi State Board of Health, a training station was established at Indianola, Sunflower County, Mississippi, where physicians, nurses and sanitary inspectors could receive field training in the practical application of the principles of preventive medicine and county health administration. This station utilizes the facilities of a full-time county health organization, the training station director acting as the county health officer. Perhaps one of the most important functions of the training station has been that of testing and appraising the men and women sent for training. In weeding out undesirable material, much has been done to reduce the number of failures of health units, save public funds and protect the popular standing of health work.

Since the establishment of the training station at Indianola in July, 1927, to May 1, 1928, 235 health workers, including fifty-eight physicians, eighty-four

TABLE 2.—*Activities of Sunflower County Health Department*

Medical and Nursing Division	Number
Cases of communicable disease investigated	166
Home visits (tuberculosis, prenatal, infant, preschool, school, midwives and others)	1,783
Midwife club meetings	62
Attendance	708
Prenatal clinics	8
Expectant mothers examined	195
Preschool conferences	17
Preschool children examined	445
School visits	311
Medical examinations of school children	5,317
School children found defective	3,544
Nutrition classes	3
Children reweighed in nutrition classes	1,791
Home nursing and hygiene classes for girls	7
Attendance	187
Health talks	285
Schick tests	406
Diphtheria toxin antitoxin (doses)	4,955
Typhoid immunization (doses)	7,766
Smallpox vaccination	8,562
Laboratory examinations by county	503
Laboratory examinations by state	2,067
Division of Sanitation	
Sanitary inspections	4,672
Privies constructed	1,066
Septic tanks constructed	27
Sanitary surveys and maps drawn	26
Restaurant inspections	174
Dairy inspections	39
Examination of water supplies	23
Sewer connections obtained	17

nurses, and ninety-two sanitary inspectors, have received training. Each individual spent an average of thirty-one and one-half days in training. Of the 235 who registered for training, ten physicians, twenty-one sanitary inspectors and fifteen nurses failed to meet reasonable standards of ability, tact and interest in the work. Some idea of the scope of the experience offered at the Indianola training station can be obtained from the summary given in table 2 of the activities of the Sunflower County Health Department in which the health workers in training took an active part. The period covered in this table is the first ten months of the health department's operation.

Of the eighty-six flood counties that have organized health units, eighty have employed personnel trained at the Indianola station. The distribution of trained personnel by states is given in table 3.

TABLE 3.—*Distribution of Trained Personnel*

State	Physicians	Nurses	Inspectors	Total
Arkansas	20	23	18	61
Kentucky	10	29	16	55
Louisiana	14	9	24	47
Mississippi	5	21	25	51
Missouri	0	0	7	7
Tennessee	1	0	0	1
Others	9	2	2	13
Totals	59	84	92	235

The majority of these county organizations have been in continuous operation from the period immediately following the stage of emergency relief to the present time, and their statistical reports bear eloquent testimony of the good work accomplished. To determine whether flood conditions had an appreciable effect on mortality in the area inundated in 1927, an analysis was

V 9
192

made of the trend of mortality in fifty-five counties in Kentucky and Louisiana over a period of ten years. The causes of death selected were those most likely to be affected by the destruction of property, the disruption of society and the loss of crops occasioned by the inundation; namely, infantile diarrhea, typhoid, diphtheria, malaria, pellagra and smallpox. The death rates were plotted on arithlog scale by years in order to bring out

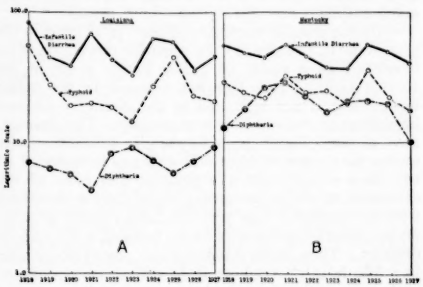


Fig. 2.—Death rates per hundred thousand of population from 1918 to 1927: *A*, for thirty-one counties in Louisiana in the flood area; *B* for twenty-four counties in Kentucky in the flood area.

the underlying rate of change over the time period. If the death rates are parallel, the rates of change are similar. A straight line on this scale indicates that the rate of change is the same annually for the period covered.

The results of this study are briefly as follows:

Twenty-four counties in the flood area of Kentucky were examined. No decrease in the death rates for infantile diarrhea and typhoid is apparent during the time period 1918-1927. There were two epidemic years, 1921 and 1925. No rise occurred in mortality from either of these diseases in 1927. Diphtheria also showed little change, but the lowest point in the series is that for 1927. Certainly no rise in mortality from this disease occurred as a result of the flood. Malaria and pellagra both decreased during the ten-year period as far as mortality is concerned. The yearly rate of decrease for malaria was 14 per cent, and for pellagra, 13 per cent. The mortality rate for both diseases rose in 1926 and in 1927. Some of this rise may be the result of flood conditions.

Thirty-one counties or parishes in the flood area of Louisiana were studied. The trends of infantile diarrhea, typhoid, diphtheria and pellagra were essentially horizontal. Epidemics of infantile diarrhea occurred in 1918, 1921 and 1925, and of typhoid in 1918 and 1925. A slight rise in infantile diarrhea mortality occurred in 1927. Diphtheria deaths also increased in 1927, but the rise was not out of line with previous experience. Pellagra has not declined in Louisiana as in Kentucky. It was high in 1925, and again in 1927. Malaria decreased throughout the period at the rate of 10 per cent a year. When the data for the two states are considered as a whole, 1925 seems to have been a worse year than 1927, and there is no indication that flood conditions per se appreciably increased mortality from these diseases.

State records of deaths from typhoid were compared with those for the counties in the flood areas. The similarity of the trends is striking. Counties in the flooded areas showed a consistently higher mortality rate than the state as a whole throughout the period. In neither case did a considerable divergence occur in 1927. The 1925 epidemic in Louisiana was greater in magnitude than that for Kentucky.

Combinations of the data for the two states give a similar picture. The flood areas had a higher mortality from typhoid throughout the period; the divergence was greatest in 1918, and from 1924 through 1927. No divergence occurred in 1927. Up to the time when the program of full-time county health units was inaugurated, more than 410,000 persons were immunized against typhoid in the flood region. The county health units have continued the work of immunization. An additional 265,700 persons have been inoculated up to May 1, 1928. Sanitary ordinances were passed, general clean up campaigns were sponsored and approximately 13,600 sanitary privies have been installed.

Prompt measures of protection against smallpox during the emergency relief period resulted in the vaccination of 141,229 persons in concentration camps. Up to May 1, 1928, organized health units had increased this number to approximately 200,000. From 1921 to 1926, the average number of cases of smallpox reported annually from Arkansas, Kentucky, Louisiana, Mississippi, Missouri and Tennessee combined was 5,650. The annual average number of deaths reported was twenty-

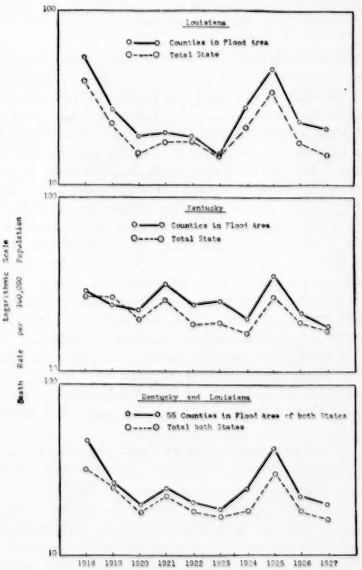


Fig. 3.—Trend of typhoid death rates from 1918 to 1927.

three and a half. In 1927, there were 4,677 cases and nineteen deaths reported in the same area.

It is estimated by Dr. Joseph Goldberger of the United States Public Health Service that there were between 40,000 and 50,000 cases of pellagra in Tennessee, Arkansas, Mississippi and Louisiana in 1927. About one half of these cases occurred outside the flooded sections. In fully 75 per cent of the cases investigated in the delta counties of Mississippi there had been a history

of pellagra in previous years. There has been a gradual increase of this disease in these states since 1924, the estimated number of cases for the states as a group is given in table 4.

A house to house canvass in one of the delta counties made between June 20 and July 22, 1927, covering an unselected population of 4,179, revealed 102 cases of pellagra, an incidence of approximately 24.1 per thousand. As a therapeutic measure the American Red

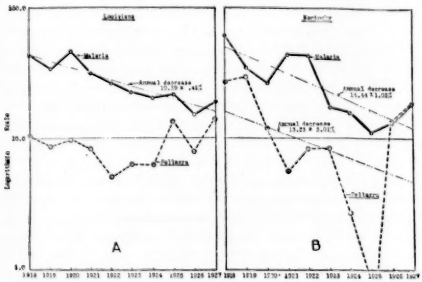


Fig. 4.—Malaria and pellagra death rates per hundred thousand of population from 1918 to 1927: *A*, for thirty-one counties in Louisiana in the flood area; *B*, for twenty-four counties in Kentucky in the flood area.

Cross has made available through the county health units approximately 12,000 pounds of dried brewers' yeast. It is difficult to evaluate the results of the yeast treatment in the flood area. As far as I know no control group was observed, and reported results are little better than expressions of opinion. In Sunflower and Humphreys Counties in Mississippi, it is planned to experiment with brewers' yeast as a prophylactic measure during 1928. More than 300 recoveries were recorded in the two counties. A group of these patients will be given 1 ounce of yeast daily throughout the summer with the aim of determining the percentage of recurrences as compared with an untreated group. Among those who have had wide experience in treating pellagra in the region during 1927, the opinion prevails that brewers' yeast is a valuable therapeutic agent.

The increase in malaria during 1927 was not confined to the flood area. From reports of George Parker, director of the Division of Malaria Control of the Mississippi State Board of Health, we learn that there was

TABLE 4.—*Number of Cases of Pellagra*

Year	Number
1924	20,000
1925	32,000
1926	37,000
1927	45,000 to 50,000

an increase of 22.8 per cent in cases reported in 1927, as compared with the previous year. The increase for the counties in the delta region was 26.3 per cent, while the counties in the delta that were inundated recorded an increase of only 22.2 per cent. In contributing to the antimalaria campaign the American Red Cross made available for use in malarious districts more than 25,000,000 grains of quinine and 200,000 gallons of spray oil. A large part of this was turned over to county health units to be used under their supervision. As a further protective measure, a program financed by the American Red Cross and the United States Public Health Service provided for the screening of 6,911 homes up to January, 1928. When this program was inaugurated last fall it was considered doubtful whether the tenant farmers would exercise care in the maintenance of the screening during the winter months. A recent survey of 3,500 tenant houses screened last fall in ten flooded counties in Mississippi revealed that in more than 95 per cent of buildings the screens were given excellent care during the winter months.

With the possible exception of the use of yeast in the prevention of pellagra, no new scientific procedures were developed as a result of public health work in the flooded area. But a true advancement in the public health field is not restricted to the discovery of new organisms or the use of a new remedy. The development of public health machinery to give full-time service to the population of eighty-six counties in a period of less than a year, with the prospect that most of the development will be permanent, is a distinct achievement with no parallel in our previous health work, whether under normal conditions or in the wake of a stupendous disaster. Thus, without representing any great advance in public health procedure, it does illustrate our power at the present time to control the spread of disease under adverse conditions.

CONCLUSIONS

1. The evolution of the efforts of the American Red Cross and the cooperating agencies during the early stages of the catastrophe into eighty-six full-time county health units concerned with the conservation of public health has been one of the gratifying developments of the past year occurring in public health work in the United States.

2. Smallpox morbidity shows a significant reduction in forty-one counties of the flooded area of Kentucky and Louisiana, while the smallpox morbidity of those two states as a whole was increased.

3. The death rate for malaria in fifty-five flooded counties in Kentucky and Louisiana shows an annual decrease over a period of ten years. The increase during 1927 is not out of line with the downward trend for the period as a whole.

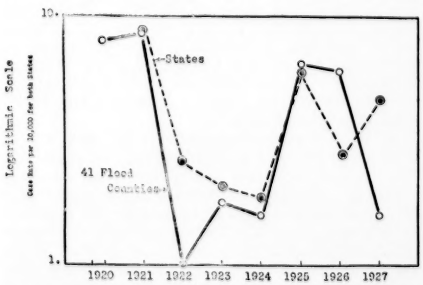


Fig. 5.—Smallpox morbidity: combined rate for states of Kentucky and Louisiana as compared with forty-one counties located in the two states, 1918-1927.

4. The death rate for pellagra in Kentucky was on the decrease over the first eight years of the period but increased in 1926 and 1927. In Louisiana the death rate for pellagra was practically constant throughout this ten year period.

5. The death rates for typhoid, infantile diarrhea and diphtheria in the fifty-five flooded counties of Kentucky and Louisiana for 1927 did not show an appreciable variation from the trend for the past ten years.

61 Broadway.

ABSTRACT OF DISCUSSION

DR. FELIX J. UNDERWOOD, Jackson, Miss.: The 1927 Mississippi Valley flood will prove to be the greatest blessing of all times to the people of the stricken area. The Rockefeller Foundation, the United States Public Health Service, the American Red Cross, the state and the several counties in Mississippi affected by the flood of 1927, working together, have accomplished what was absolutely impossible before. Politics, local divisions, and all past differences seemed to be forgotten. Ten counties were affected; four completely and six partially—out of a total of 5,740 square miles of the ten counties, 3,073 being inundated, an acreage of 1,966,940. The total population was 305,152, the population in the flood being 131,193. The number of flooded farm wells was 24,255; the number of wells disinfected by use of chlorinated lime under the supervision of health officials was 20,175. At the expense of the American Red Cross and under the supervision of the United States Public Health Service, 10,238 screen doors were manufactured for use throughout the flooded area. In addition, 1,675 doors were manufactured for use in an area adjacent to the flooded area of Leflore County, 468,706 yards of screen wire being used and distributed. The field work was done under the supervision of Mr. George Parker, sanitary engineer in charge of malaria control activities in Mississippi. The number of homes completely screened was 3,832. Yeast, tomatoes, milk and canned salmon were distributed in enormous quantities. In all, 115,110 residents in the flooded area were immunized against typhoid; 22,729 against smallpox, and 1,835 against diphtheria in refugee camps before they returned to their homes, or tents in many instances. Through the cooperation of the Rockefeller Foundation and the United States Public Health Service, a well organized full-time county health department has been established in each of the counties in the flooded area. The routine activities of these departments include general sanitation, rural and urban; inspection of dairies and food establishments; physical inspection of school children; the control of communicable diseases; the organizing and conducting of infant welfare in preschool and prenatal clinics; the supervision and training of midwives, and the conducting of general educational campaigns pertaining to the prevention of disease and the promotion of public health. Budgets range from $7,650 to $14,100. While we are proud of our health departments, we are also proud of our training school organized and conducted by the International Health Division of the Rockefeller Foundation at Indianola, Sunflower County.

DR. MATTHIAS NICOLL, JR., New York: At the meeting of the House of Delegates of the American Medical Association I was rather surprised to hear a resolution to the effect that in times of disaster, including flood, the county medical society should take charge and do the work until the federal health authorities arrived. I should like to know whether it is the natural right of the constituted health authorities and those that work with them in a nonofficial way, as the Red Cross, to attend to matters of this kind.

Insulin Hypersensitiveness.—As a result of the injection of insulin, a fortunately small percentage of individuals may display a reaction of hypersensitiveness to the insulin protein in its purest form, as exemplified in the first patient herein reported. This type of reaction occurred after a number of injections had been given, manifesting itself by generalized urticaria and edema; showing by skin test a high degree of cutaneous sensitivity to insulin, irrespective of its biologic source. By the method of local passive transfer of Praussnitz and Kustner on several occasions, reagins to insulin protein could be demonstrated in the patient's serum, these antibodies disappearing four months after the occurrence of the reaction.—Tuft, Louis: *Am. J. M. Sc.*, November, 1928.

TREATMENT AND PREVENTION OF SCARLET FEVER BY SPECIFIC ANTITOXINS AND SERUMS

REVIEW OF THE LITERATURE *

JOHN A. TOOMEY, M.D.
CLEVELAND

There are a few points about scarlet fever which, if mentioned, would serve as a background for the discussion of specific scarlet fever therapy and prevention.

In Providence, where Chapin [1] has kept careful records for more than forty years, the morbidity of this disease is about the same as or slightly less than in 1885. The mortality rates have fallen from 40 to 2 per hundred thousand, a decline which Pope [2] states is characteristic of most American cities. Our own mortality rate in Cleveland has fallen, and since 1922 has not been over 1.5 per cent, with 1.1 per cent in 1927 and with the unbelievable figure of 0.6 per cent in the first three months of 1928. The case fatality in Providence was only 0.57 per cent for 1923 and 0.76 per cent for 1924. Hoyne [3] in Chicago had a death rate of only 0.7 per cent in 1,122 untreated cases. This low death rate is not peculiar to Cleveland but is prevalent throughout the registered areas of the United States. Any deduction that scarlet fever antitoxin reduces the mortality rate is not convincing since the introduction of specific therapy occurred at a time coincident with a general declining mortality.

In 1926 our general mortality rate was only 0.3 per cent higher, in 1927 equal to, and back in 1919 only 0.1 per cent higher than Cushing's [4] mortality rate of 1.1 per cent in 1926, which he ascribes as due to antitoxin.

Articles have appeared in which hospital mortalities are given, and comparisons made from the rates of one year as compared to another and favorable decreases are said to have been due to antitoxin. Such figures only confuse if we lack information on the general district mortality. Our [5] hospital mortality rate for the first three months of 1928 was 4.3 per cent, an increase of 1 per cent over our last year's rate, although the general city mortality rate for the same period was 0.6 per cent, a decrease of 0.5 per cent from the previous year. Outside the hospital in 1922, the rate in Cleveland was only 0.1 per cent, while it was 3 per cent in the hospital with a general city mortality of 1.69 per cent, which is less than most of the mortality rates given by authors using antitoxin. A hospital might admit the only patients that die in a community with a resultant high mortality, and unless a comparison with the general district mortality rate is available, any figures offered are misleading.

In most papers, the statistics of mortality are general and are usually bare of explanation. The reasons patients die are very important and should be considered, and the more considered, the less obvious are the beneficial results of antitoxin since it may be that hospital patients have such admission handicaps that

* From the Division of Contagious Diseases, Cleveland City Hospital, and the Department of Pediatrics, Western Reserve University School of Medicine.

* Read before the Section on Diseases of Children at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

1. Chapin, cited by Pope (footnote 2).
2. Pope, A. S.: Studies on the Epidemiology of Scarlet Fever, Am. J. Hyg. **6**: 339 (May) 1926.
3. Hoyne, A. L.: Scarlet Fever: Its Treatment, Illinois M. J. **43**: 405 (Dec.) 1925.
4. Cushing, H. B.: Results of the Use of Scarlet Fever Antitoxin, Canad. M. A. J. **16**: 936 (Aug.) 1926.
5. Toomey, J. A., and Dolch, E. G.: Studies in Scarlet Fever: VI, The Use of Scarlet Fever Antitoxin, to be published.

nothing could save them. It is hard to imagine good results from antitoxin in the puerperal type of septic scarlet fever, in the scarlet fever case with peritonitis, in the case of scarlet fever with burns, or in an individual who has diphtheria in combination with scarlet fever, and these are the typical cases from which patients die.

From Jan. 1, 1922, to Aug. 1, 1926, 2,058 scarlet fever cases were admitted to our hospital.[6] Sixty-five patients, or 3.1 per cent, died. Thirteen of these were admitted within forty-eight hours after the onset of their symptoms and only three of these were toxic uncomplicated types. Six of these patients had complications, such as burns, and, curiously enough, four were given scarlet fever antitoxin within twenty-four hours of the onset. When the case fatalities are analyzed, it is difficult to see just how antitoxin would prevent death and cut down the mortality rate.

Scarlet fever is a self-limited disease, the acute symptoms lasting from two to seven days with the temperature in the average case coming down to normal by lysis or crisis about the fourth day. Obviously, if mercurochrome or antitoxin is given intramuscularly on the evening of the third day, the general chances are that the temperature will be normal the next day or going down at least. Most of the authors forgot to give the length of time the patients were ill before receiving antitoxin. When these data are given, we see with surprise that the temperature came down about the time one would expect it to come down in the average case.

The Dicks [7] mention the variability of the disease and believe that great numbers of patients must be treated before conclusions can be drawn. Most other contributors, however, ignore this factor of variability, not remembering that the disease of one year or even of one month and the complication rate of one epidemic may be totally different from the disease or complication rate of another year or month of another epidemic, as to both mildness and severity. This variability is ignored and the attempt unwisely made to compare the results obtained in a treated group of one year with that of an untreated group of another year. Conclusions reached by this statistical method are merely opinions and none the more valuable if held by many.

More than 125 references are listed in the *Quarterly Cumulative Index* since Blake's first article on the effect of Dochez's antitoxin. These contributions may be divided into four classes: (1) original articles describing cases treated by antitoxin in great detail with results and proper controls; (2) cumulative articles without details which merely draw general conclusions and which are impossible to analyze; (3) articles whose authors used cases from other epidemics or patients treated with convalescent serum or other therapy for their controls, and (4) articles whose authors do not have controls. In the literature available to me, there were 4,611 patients treated with scarlet fever antitoxin; 1,171, or 26 per cent, had controls from the same epidemic. Of the remaining 3,440, 1,798 cases were controls from other epidemics, thirty-seven convalescent serum controls, and 1,605 treated patients did not have controls.

Ignoring all classes save those with proper controls, there are about a dozen articles whose figures may be analyzed in whole or in part. The general conclusions reached by the majority are that in the treated case the rash disappears earlier, the temperature comes down more quickly, the patient is less toxic and better sooner, and the rate of complications is lessened.

The fact that the rash disappears quickly is stated by many usually without substantiating data, or frequently, if data are given, the length of time the patient was previously ill is missing. In ten of Thenebe's [8] twenty-two treated patients, the rash was gone in two days and the remainder above that, but seventeen of the twenty-two patients were sick from three to seven days before treatment. In the series of Platou and Collins,[9] the rash was gone 1.2 days sooner. Gordon, Bernbaum and Sheffield [10] state that the rash lasted from 1.3 to 1.8 days following antitoxin, but there are no figures to tell how long patients were sick before receiving antitoxin. In our own experience [5] there were comparatively more patients losing their rash in the first forty-eight hours, but this was more than counterbalanced by the fact that in the next four days more of the untreated lost their rash than the treated.

Practically all the authors state that temperature decreases with treatment. In Platou and Collins' [9] series of 100 cases, the temperature came down 1.8 days sooner. In Bagley's [11] series of 172 cases, the average time for the temperature to reach 99 was about five days, with the greatest drop in the first twenty-four hours. In Doolittle's [12] series of 100 cases, the temperature became normal on the average 8.9 days following treatment, and in Gordon's [13] earliest series, 1.2 days earlier than the untreated patient. In Gordon, Bernbaum and Sheffield's [10] later series of 1,508 cases, the fever lasted from 7.4 to 9.2 days after antitoxin. In Benson and Maciver's [14] series of 107 cases, the temperature fell rapidly in ninety-nine patients treated, but it fell as rapidly in sixty-one untreated cases. In the reports of Toomey and Dolch,[5] the temperature curve of the intramuscularly injected patient is not any better than that of the untreated patient. On the other hand, they experienced a sharp drop in temperature with their first intravenous injections of Dick antitoxin.

The toxicity and symptoms were alleviated according to Platou and Collins [9] at least 1.75 days sooner in the treated case. In Bagley's [11] experience, the toxicity was frequently abated in a very few hours. In Gordon's [13] first publication, the patients were better 3.2 days sooner than the untreated patients, and in his second and more complete series,[10] of 1,508 treated cases, 2.9 days following antitoxin. Unfortunately in the latter article there is no reference to the length of time the patients were sick before receiving the antitoxin. In our own experience, the duration of toxicity was slightly less during the first three days of the treated group, but the difference was anything but conclusive.

There is no uniformity in the literature as to the percentage of complications following antitoxin treat-

6. Toomey, J. A., and Dolch, E. G.: Studies in Scarlet Fever: III. An Analysis of Scarlet Fever Cases Untreated by Specific Serums or Antitoxins, Am. J. Dis. Child. **33:** 424 (March) 1927.

7. Dick, George F., and Dick, Gladys H.: Scarlet Fever, Am. J. Pub. Health **14:** 1022 (Dec.) 1924.

8. Thenebe, C. L.: Administration of Dochez's Antiscarlatinal Serum (Scarlatinal Antitoxin) Intravenously: Preliminary Report, Boston M. & S. J. **192:** 939 (May 14) 1925.

9. Platou, E. S., and Collins, L.: Clinical Study in Prevention and Serum Treatment of Scarlet Fever, Arch. Pediat. **43:** 707 (Nov.) 1926.

10. Gordon, J. E.; Bernbaum, B. B., and Sheffield, L. C.: Convalescent and Antitoxic Serums in Scarlet Fever, J. A. M. A. **90:** 1604 (May 19) 1928.

11. Bagley, H. E.: Treatment and Prophylaxis of Scarlet Fever, J. Mich. M. Soc. **26:** 148 (March) 1927.

12. Doolittle, S. E.: Scarlet Fever Streptococcus Antitoxin: Treatment of Scarlet Fever Cases, Northwest. Med. **26:** 26 (Jan.) 1927.

13. Gordon, J. E.: Treatment of Scarlet Fever with Streptococcus Antitoxin, J. A. M. A. **88:** 382 (Feb. 5) 1927.

14. Benson, W. T., and Maciver, D. P.: Treatment of Scarlet Fever with Specific Antitoxin Serum, Edinburgh M. J. **32:** 701 (Dec.) 1925.

V 91
1928

ment. Blake[15] had 15 per cent in one of his first series. In a group of 100 cases, the Dicks[16] report nineteen complications in the untreated and four in the treated. Thenebe[8] had fifteen (?) out of eighteen in the untreated as compared to thirteen out of twenty-two in the treated. Anderson and Leonard[17] had only 4.6 per cent complications in the treated and 28.6 per cent in the untreated. Twenty-three of Benson and Maciver's[14] 107 patients and thirty of his controls had complications. Doolittle[12] had 23.3 per cent in the controls as compared to 18 per cent in the treated patients. In Toomey and Dolch's report[5] there were 39.2 per cent complications in the treated as compared to 36.6 per cent in the untreated. Cushing[4] had 25 per cent complications in the year he treated patients as compared to 45 per cent in the previous year.

If we would grant all that the most sanguine could wish for, the conclusion would be that the rash fades, fever is lowered and the toxicity or sickness disappears a day or two earlier in the treated than in the untreated patient. A definite conclusion could not be reached as to the prevention of complications. Do the disadvantages coincident with or following serum injection outweigh its beneficial effects?

This brings us to a point which should be mentioned and which is ignored by many authors, and that is a consideration of the distressing serum sickness occurring with or after the administration of antitoxin. Here, again, there is no definite agreement in the literature. Some authors, like Thenebe,[8] give intravenous unconcentrated antitoxin without trouble, and others, like Park,[18] have 60 per cent reactions when antitoxin is given intramuscularly. The Dicks[19] state that serum reactions are uncommon in persons who do not give a history of previous administration of horse serum. This certainly has not been our experience in our diphtheria wards. Park[18] had 30 per cent of patients who had serum sickness after treatment with refined antitoxin. Twenty-nine per cent occurred in Birkhaug's[20] cases, 25 per cent in Platou and Collins'[9] cases, 16.2 per cent in Levy's[21] cases, 31 per cent in Benson and Maciver's[14] cases, in practically all of Harries'[22] and Bagley's[11] cases, 42 per cent in Rolleston's[23] series, 15 per cent in Doolittle's[12] cases, 23.7 per cent in Kinloch, Smith and Taylor's[24] cases, 33 per cent in Gordon, Bernbaum and Sheffield's[10] cases and 38.5 per cent in a series of Toomey and Dolch.[5]

In our experience, we had all types of reactions—early thermic responses, thermic responses with urticaria and edema, late urticaria and an anaphylactoid phenomenon with three deaths due to or hastened by antitoxin. In most of our treated cases there was far more illness from the effects of serum sickness than from the scarlet fever. Is it worth while, then, to inject all our patients in the face of the mildness of the present type of scarlet fever, just to see them better a day or two sooner and have serum sickness, or would it be better to leave them alone and take our chances on the average course of the disease? I believe that all will agree that the ultimate fate of antitoxin therapy will be settled only in an epidemic with a high mortality rate. I myself have yet to see the data of a series treated with intramuscular injections of scarlet fever antitoxins which I could not, without much discredit, match with a series of my own untreated cases.

The reports from the literature as to the prophylactic value of antitoxin vary widely. It is difficult enough to determine the therapeutic value of antitoxin even after the patient has contracted the disease; but when we add to this consideration the problem of individual immunity, the consideration of the epidemic character of the disease, the possible variability of the serums, the differences of the virulence of the organisms and the lowness of the contagious index, it is difficult to see how any definite conclusions can be reached.

Many authors cite, as proof, the fact that the incidence of disease contraction in orphanage hospitals is less one year when antitoxin is given as compared to another year when antitoxin has not been used. Most of these contributors fail to ascertain how many of the exposures are susceptible. The usual method is to inject all who have been exposed, and other scarlet fever does not occur save perhaps in two or three cases in which it is always explained that the injections were given during the incubation period. Others, who have had orphanage experience, will remember many times when scarlet fever had broken out and nothing was done, without subsequent cases. Nevertheless, there are some articles with definite data. The Dicks[25] immunized sixty-two exposed persons, fifty-two with naked toxin and ten with convalescent serum. Of the controls, seven contracted the disease. Two out of Graham's[26] thirty-one protected patients developed scarlet fever, five of Platou and Collins',[9] two of Huntley's,[27] two of Kinloch, Smith and Taylor's,[24] eight of von Bormann's,[28] one of Lees',[29] six of Toomey, Fullerton and Kishman's,[30] and two exposed patients of Cushing's.[4] The numbers of reported cases these authors present in which the patients did not develop scarlet fever after injection were impressive by comparison.

The average percentage of exposed persons who are susceptible are varied according to reports anywhere from 19 to 100 per cent, depending on the age group and the type of patient. An average percentage of susceptibility may be as low as 35 in a composite group, so that 65 per cent of exposures could be considered immune. Yet in Providence, in intimate exposures to scarlet fever of 24,685 persons,[1] the number of secondary cases was 2,138, or 8.6 per cent. Certainly if

15. Blake, F. G.: Treatment of Scarlet Fever with Dochez's Anti-scarlatinal Serum, Boston M. & S. J. **191:** 43 (July 10) 1924.
16. Dick, George F., and Dick, Gladys H.: Therapeutic Results with Concentrated Scarlet Fever Antitoxin, J. A. M. A. **85:** 1693 (Nov. 28) 1925.
17. Anderson, J. F., and Leonard, G. F.: Preparation and Clinical Observation of Scarlet Fever Antitoxin, Am. J. M. Sc. **172:** 334 (Sept.) 1926.
18. Park, W. H.: Scarlet Fever: Etiology, Prevention by Immunization and Antitoxin Treatment, J. A. M. A. **85:** 1180 (Oct. 17) 1925.
19. Dick, George F., and Dick, Gladys H.: Therapeutic Results with Scarlet Fever Antitoxin: Preliminary Report: Preparation, Standardization and Dosage of Antitoxin, J. A. M. A. **84:** 803 (March 14) 1925.
20. Birkhaug, K. E.: Studies in Scarlet Fever: Studies on Use of Convalescent Scarlet Fever Serum and Dochez's Scarlatinal Antistreptococcic Serum for Treatment of Scarlet Fever, Bull. Johns Hopkins Hosp. **36:** 134 (Feb.) 1925.
21. Levy, G. J.: Antitoxin Treatment of Scarlet Fever, J. Tennessee M. A. **19:** 73 (July) 1926.
22. Harries, E. H. R.: Serum Treatment of Scarlet Fever, Public Health, January, 1926, p. 104.
23. Rolleston, J. D.: Scarlet Fever Symposium, Proceedings of the Royal Society of Medicine, May, 1927.
24. Kinloch, P. J.; Smith, J., and Taylor, J. S.: Newer Knowledge of Diphtheria and Scarlet Fever and Its Application in Hospital Practice and in Community Immunization, J. Hyg. **26:** 327 (Aug.) 1927.
25. Dick, George H., and Dick, Gladys F.: Prevention of Scarlet Fever, J. A. M. A. **83:** 84 (July 12) 1924.
26. Graham, R. H.: Dochez Scarlet Fever Antitoxin in Thirty-One Cases, J. A. M. A. **85:** 95 (July 11) 1925.
27. Huntley, V. F.: Experience with Scarlet Fever Antitoxin, J. Michigan M. Soc. **25:** 388 (Aug.) 1926.
28. Von Bormann, F.: Erfahrungen mit dem Scharlachschutzserum der Marburger Behringwerke, Deutsche med. Wchnschr. **53:** 1342 (Aug. 5) 1927.
29. Lees, H. D.: Dick Test with Active and Passive Immunization for Scarlet Fever, J. A. M. A. **88:** 1133 (April 9) 1927.
30. Toomey, J. A.; Fullerton, R. M., and Kishman, M. E.: Studies in Scarlet Fever: II. Prophylaxis of Scarlet Fever, Am. J. Dis. Child. **33:** 420 (March) 1927.

this percentage would be true for other American cities as it is of Cleveland, that, if no other reason, would make us doubt the advisability even of prophylactic passive injections.

Although I have not been much impressed with the value of antitoxin either in treatment or in prophylaxis, I am extremely enthusiastic about the results I have obtained by the active immunization of susceptible patients in the manner and according to the methods advocated by the Dicks. This routine procedure has practically eradicated scarlet fever among the resident population of our hospitals.

Cleveland City Hospital.

ABSTRACT OF DISCUSSION

DR. ARCHIBALD L. HOYNE, Chicago: There is only one thing in Dr. Toomey's paper to which I take exception. Mention was made of a series of nonserum treated scarlet fever patients reported by me who were referred to here as untreated. It was my impression that those patients were very well treated. While it was not the intention, perhaps, to make any point of this in the paper, it serves as an illustration of the present-day attitude toward the treatment of scarlet fever. Scarlet fever antitoxin is given and the treatment is considered complete. I think it is far from being complete. There is a great deal to the treatment of scarlet fever besides the use of antitoxin, even if one is enthusiastic and insists that this form of treatment is very good. A few years ago, some one pointed out, there was a reduction of 62 per cent in the mortality of scarlet fever throughout the United States. At the Municipal Contagious Disease Hospital in Chicago, for a period of ten years, from 1917 to 1926, the mortality rose as high as 3 per cent only once, and that was before scarlet fever antitoxin was being used. Scarlet fever antitoxin has not lowered the mortality. From the standpoint of the public hospital, I have not seen anything which would justify the expense that would be entailed by the administration of scarlet fever antitoxin in every case of scarlet fever. The fallacies pointed out by Dr. Toomey ought to receive careful consideration from those who see good results from anything they use provided it is new. The matter of prophylaxis with the use of scarlet fever antitoxin is something which so far as I have had an opportunity to observe has been practically without value. In contrast to passive immunity, the use of the toxin for active immunity certainly seems to be of great value, as Dr. Toomey has stated.

DR. CHARLES GILMORE KERLEY, New York: My attitude on scarlet fever antitoxin has been gained through consultation and association. Naturally I have seen only one class of cases, one type of outcome, and that has been the class that showed marked anaphylactic reaction, so severe that I cannot help being prejudiced against the antitoxin as it is produced at the present time. My attitude is that on the average, the majority of cases are extremely mild, and the habit of using antitoxin on general principles because the child has scarlet fever is a very bad one. Many of the cases I have seen are the result of the propaganda of overenthusiastic health officers or parents who want the use of the antitoxin because they have read in articles written by medical men and published in the newspapers and magazines that it is the proper thing to do. The only type of case in which I feel that I should want to use it is the case of scarlet fever that starts off with signs indicating that it is going to be fairly severe. One can tell at the beginning of scarlet fever whether it is going to be severe or not by the appearance of the rash. In such a case I believe we are justified in using the serum antitoxin and taking a chance on anaphylaxis. Antitoxin propaganda by health departments and other agencies should not be carried out.

DR. A. CLEMENT SILVERMAN, Syracuse, N. Y.: From my experience with scarlet fever serum, it seems to me that it is important to differentiate between the types of cases, and the author has not said anything about the use of serum in the different types. Clinical writers years ago emphasized among the types of scarlet fever the septic and the toxic. If the serum is used primarily in the toxic cases, I believe clinical observations show that it does do a great deal of good in causing a rapid drop in temperature and the amelioration of toxic symptoms. I agree with the author in regard to the prophylactic use of the serum. I do not believe that it should be used, and I do not encourage it. In the first place, one does not know what type of disease may develop. The condition may be very mild, and serum will not be needed at all. If a toxic case should develop in the contact, there is still the opportunity to use serum. The prophylactic use of serum in contacts may lead to confusion in diagnosis, because of absence of the scarlatinal eruption. It may cause the development of allergic symptoms, and in some patients the serum disease has seemed a worse thing than a very mild case of scarlet fever. For these reasons, I am against the use of the serum prophylactically. In toxic cases, however, I do feel that I have seen very marked results.

DR. CLARENCE A. EARLE, Des Plaines, Ill.: I have been medical attendant of a large orphan asylum, with from 1,000 to 1,200 inmates for more than a third of a century. I believe that while there probably is justification for the use of the five doses as made up by the Dicks for the active immunization of scarlet fever, time will show that there is another justification. I think it is fairly well known that there is a generic relation between all of the hemolytic streptococci, and it may be demonstrated that immunization against scarlet fever will confer some immunity against other diseases that are frequently caused by these streptococci, namely, puerperal fever and erysipelas. I think that in girls especially, this active immunization ought to be employed. I have had a very limited experience with passive immunization. I have used antitoxin only once, at about the forty-eighth hour of the disease. Within twenty-four hours the rash was gone and the child had become convalescent.

DR. FRANK C. NEFF, Kansas City, Mo.: I should like to ask Dr. Toomey what he has found to be the best means of preventing serum sickness. Has epinephrine been used as a prophylactic of serum sickness?

DR. JOHN A. TOOMEY, Cleveland: I must apologize to Dr. Hoyne if I misunderstood him. The reference he objects to was taken from his paper printed in the *Illinois Medical Journal* in 1925. In the first part of the paper, he discussed the effects of antitoxin, describing only thirty-five cases treated with the Dick antitoxin and only fifteen with the Dochez antitoxin. In the last paragraph of the paper, the statement was made that among 1,022 cases, there was a mortality rate of only 0.7 per cent. I took for granted that the entire group, save the fifty cases mentioned, had been untreated with specific antitoxin. Dr. Kerley believes that antitoxin should be given only in the more severe type of cases. If one analyzes those cases of scarlet fever that terminated fatally, one speedily comes to the conclusion that antitoxin would not have helped much. Dr. Silverman speaks of the septic and toxic types of antitoxin. In a series of 1,683 cases which we reported a few years ago, we were unable to find a great number of so-called toxic cases in the same percentages that other men have described or found them. Of the sixty-five patients who died in that series, only thirteen, or about 0.7 per cent of the series, could be considered as having the so-called toxic type. The most important thing in the care of these scarlet fever patients is to obtain the cooperation of a good nose and a throat specialist to help clear up the plugged nose. Dr. Neff asks whether I have used epinephrine or other means to prevent serum sickness. I have used practically everything. I remember three patients who developed edema of the larynx after antitoxin, this condition persisting throughout the entire night until we thought we might have to do a tracheotomy. Tracheotomy was done on one patient and he died about an hour later. Dr. McCulloch asks whether I will discuss the length of time that active immunity lasts. This is not apropos to my paper, but in our series of immunized nurses, I can state that active immunity brought about by the methods advocated by the Dicks has lasted almost three years. I cannot answer the question as to whether or not in those patients who are actually immunized there is subsequent relief from sore throat or other coincident throat infection.

INJURIES TO THE CHEST

A RADIOLOGIC STUDY *

L. R. SANTE, M.D.
ST. LOUIS

In the last decade accidental injuries have occurred in constantly increasing numbers, as a result of our present-day industrial methods and high speed transportation systems. Among the most important injuries are those sustained by the chest and respiratory organs. The thoracic wall is an elastic structure which ordinarily withstands considerable trauma without injury to the underlying organs, yet it is surprising what trivial injuries may give rise to rupture of the lung and spontaneous pneumothorax.

In this paper I will consider briefly the pathologic conditions produced by trauma to the chest and indicate the rôle played by radiology in their detection. These may be briefly considered under the following headings:

Injuries to the chest wall:
- Fractured ribs.
- Hematoma.
- Subcutaneous emphysema.

Injuries to the pleura:
- Traumatic pleurisy.
- Hemothorax.

Injuries to the lung:
- Hemorrhage into the lung.
- Traumatic pneumonia.
- Traumatic pneumothorax.

In order to carry out this investigation, a study was made of the cases showing injury to the chest which were treated at the St. Louis City Hospital and St. Mary's Hospital during the past five years.

INJURIES TO THE CHEST WALL

Fractured Ribs.—Fractures of the ribs are usually simple fractures unattended with injury to the surrounding structures. If multiple or accompanied by extensive displacement of the fragments, they may give rise to injury to the lung, which makes the prognosis more grave. If fracture of the ribs produces hemothorax, the bleeding usually occurs at once; occasionally, however, it may be deferred for several days after the injury. One instance was encountered in which slight exertion resulted in a fatal hemorrhage into the pleural cavity of a man, aged 65, three days after a simple fracture of a rib. Radiographic examination before did not show any trace of effusion in the chest or injury to the lung; but reexamination at the time of collapse revealed a large hemothorax.

Hematoma.—Occasionally fracture of the ribs may cause rupture of an intercostal artery, resulting in extensive extravasation of blood into the subcutaneous tissues of the chest wall. Ordinarily such extravasations cannot be detected in the roentgenogram unless they are so large as to cause bulging inward of the pleura or swelling of the subcutaneous tissues. Such hematomas are usually absorbed within a short time and do not leave any permanent trace of their existence. Only rarely do hemorrhages into the subcutaneous tissues fail to resolve and result in calcified plaques in the chest wall. Only when hemorrhage occurs into the interstitial connective tissue or into a muscle does calcification take place. Calcified hematomas of this type do not necessarily become permanent defects; they may be absorbed and disappear entirely under the influence of hot applications.

Subcutaneous Emphysema.—Air may be forced into the subcutaneous tissues, giving rise to subcutaneous emphysema. Air may gain access to the subcutaneous tissues from the outside when the skin is broken by the fractured end of a rib or is severely lacerated from any other cause. Air may find its way under the skin from the inside from rupture of the lung by a protruding fragment or from a forcible compression of the chest without fracture of the ribs or laceration of the chest wall of any sort. With every inspiration air is drawn into the wound, and with each expiration it is forced out into the subcutaneous tissues. Small areas of subcutaneous emphysema are frequently encountered about the wound in gunshot wounds or stab wounds of the chest; usually the involved area is small and the process remains localized. Subcutaneous emphysema may extend along the fascia planes into the subcutaneous tissues of the neck or may even invade the subcutaneous tissues of the entire body, jeopardizing the patient's life.

INJURIES TO THE PLEURA

Traumatic Pleurisy.—When the ribs are fractured, a certain amount of injury to the pleura is almost inevitable. Injury to the chest wall, however, without associated fracture of the ribs may result in injury to the pleura, giving rise to traumatic pleurisy. Acute, knifelike pains occurring from two to seven days after injury to the chest, even when fracture of the ribs has not been sustained, are always suggestive of this condition. Pleurisy resulting from injury usually manifests itself as a thickening of the pleura, most frequently confined to the parietal pleura in the region of the trauma, but sometimes extending to involve the entire parietal pleura. The pleural thickening produced by trauma does not present any different appearance from that produced by infection. Radiographically, pleural thickening appears as a ribbon-like shadow extending along parallel to the lateral chest wall. Occasionally very severe traumatic pleurisy may be accompanied by pleural effusion, but this is a rare complication. If the pain associated with this condition is very severe there may be immobilization of the diaphragm on the affected side. Ordinary methods for immobilization of the involved side of the chest, and time, are the chief factors concerned in the restoration to normal function. The condition is not at all uncommon, but it rarely incapacitates the patient or causes his confinement to the hospital.

Hemothorax.—Blood free in the pleural cavity does not show the same tendency to clot as elsewhere, nor does it undergo organization and calcification. Fluid blood has been aspirated from the pleural cavity fully three months after injury. Small amounts of blood are undoubtedly absorbed, but large quantities, especially after the blood has undergone chemical disintegration, often do not absorb and must be removed.

Hemothorax and injury to the lung are most frequently the result of gunshot wounds and stab wounds of the chest. In a series of 135 cases of gunshot wounds treated at the St. Louis City Hospital during the last five years, fifty-eight proved fatal, largely

* From the Departments of Radiology of St Louis University School of Medicine and the St. Louis city hospitals.
* Read before the Section on Radiology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

because of associated injury to the abdomen, skull or spinal cord. Only four of the fatal cases were from lung involvement alone, and in all of these the wound was in the upper chest, or traversed both lungs from side to side. In the first patient the wound was located in the episternal notch; in the second it was through the sternoclavicular joint; in the third the wound was in the upper lobe, and in the fourth the wound was in the axilla, traversing the chest from side to side. It is probable that these cases were attended with mediastinal involvement, since vomiting of blood was a prominent symptom. If one lung alone is involved, and the injury is not extensive, recovery can be expected in a large percentage of cases.

Fig. 1.—Hemothorax frequently takes on a roentgenographic appearance much different from that produced by ordinary pleural effusion. The fluid spreads itself out in a thin layer between the lung and the chest wall, producing a generalized haziness over the entire lung. The shadow is not as dense as that produced by ordinary effusion and the ribs can be seen through the shadow. Only rarely are the mediastinal structures displaced. Without consideration of the clinical history, the roentgenographic appearance presented by hemothorax might easily be mistaken for massive consolidation. Whenever possible, examination should be made in the erect position; when this is not possible, additional examination should be made with the patient rolled on his side.

In a series of 108 stab wounds of the chest treated at the St. Louis City Hospital during the last five years, eleven proved fatal. Death in these instances likewise was due to associated injury to other organs, especially the heart and abdominal organs. One instance occurred in which death was probably due to hemorrhage from an intercostal artery, since no evidence of injury to the lung could be found at autopsy. When a stab wound is confined to the lung and is unassociated with injury to the heart or abdominal organs, recovery can be expected in a very large percentage of instances. Following a penetrating wound of the chest, one of the most dreaded complications is infection. That the temperature reaction is not a reliable guide as to the presence of infection was amply demonstrated by the constantly high temperatures which persisted for days in patients suffering from hemothorax in which cultures of the blood were sterile. Subsequent evacuation by absorption or aspiration was followed by a subsidence of the fever. Temperatures as high as 103.5 F. were encountered without infection. Penetrating wounds sustained by soldiers during the war resulted in subsequent infection in from 20 to 25 per cent of the cases.

Infection, at least in civil practice, likewise cannot be considered a very frequent complication, since in only three instances in a total of 174 patients who survived, following penetrating gunshot wounds and stab wounds of the chest, did empyema subsequently develop, once following a gunshot wound and twice following stab wounds. A large amount of blood, allowed to remain in the chest for a long period of time, predisposes to infection and empyema, a fact demonstrated experimentally by Allen.[1] In all patients who had empyema, the infection developed in large collections of blood allowed to remain in the chest for a long time.

Of 135 patients in this series who sustained gunshot wounds of the chest, twenty-seven did not show any evidence of hemothorax or injury to the lung. In practically all of these the injuries were superficial and did not penetrate the chest cavity. Of the 108 remaining definite penetrating chest wounds, twelve showed evidence of hemorrhage into the lung substance only, and ninety-six showed injury to the lung and hemothorax; six of these showed pneumothorax as an added complication.

Of the 108 patients who sustained stab wounds of the chest, sixty-nine did not show any evidence of injury to the lung or hemothorax. Practically all of these were superficial injuries or penetrated the chest wall so slightly as not to cause any material harm. Of the thirty-nine remaining cases, six showed injury to the lung only; thirty-three showed injury to the lung with hemothorax, and in nine cases pneumothorax was an added complication. Hemothorax and injury to the lung is the most frequent type of serious injury to the chest. Injury to the lung and hemothorax is usually evident in the radiographic examinations made at the time of injury, but many cases have been encountered in which hemothorax was not detected at the initial examination made soon after the injury and was discovered several days later only after reexamination. This is probably due to the fact that oozing from an injured lung may continue for a long time, ultimately resulting in a rather large collection of blood in the pleural cavity. This should be borne in mind by the radiologist and surgeon, who should not be lulled into a sense of false security by a single roentgenogram made soon after the accident showing little if any hemorrhage. Subsequent radiographic examinations should be made later to determine whether or not bleeding is still taking place. Blood in the free pleural cavity does not show the same tendency to clot but remains fluid for weeks or even months. Small collections may be absorbed, but large collections usually have to be removed. After a time the blood undergoes chemical changes and when aspirated shows a dark chocolate color in place of the bright red color of fresh blood. After the blood undergoes these changes, it is doubtful whether material absorption takes place, and it must ultimately be removed.

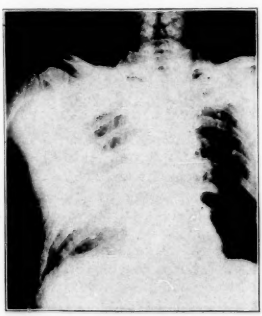


Fig. 2.—Injury to the lung usually produces an immediate hemorrhage into the lung substance which results in an irregular shadow in the roentgenogram simulating lung consolidation. The entire lung field is usually somewhat obscured, probably from congestion or slight associated hemothorax even though the roentgenographic signs of pleural effusion are not evident on the film.

Hemothorax, when fully established, may produce a radiographic picture similar to that of any ordinary

1. Allen, D. S.: The Etiology of Empyema, Surg. Gynec. Obst. **45**: 23 (Jan.) 1927.

pleural effusion;[2] namely, a dense homogeneous shadow in the lower portion of the chest, obscuring the costophrenic angle and presenting a hazy curved upper border extending from the hilum region upward and outward to the axilla. If associated with pneumothorax, the fluid will assume a straight-line level, similar to effusions of other types. When recent, however, hemorrhagic pleural effusions may vary somewhat in their radiographic appearance from those of ordinary type. The blood escaping from a localized injury in

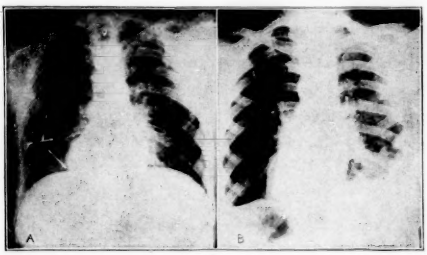


Fig. 3.—*A*: A gunshot wound or stab wound may pass completely through the lung without showing any evidence in the roentgenogram of its passage, if the examination is made within a few hours after injury. Note that, although there appears to be some congestion in the lower lobes, there is no roentgenologic evidence of injury to the lung; a bullet has passed through the right lower lobe. *B*: Several days later, reexamination was made and there was evidence that hemorrhage into the lung substance of the lower lobe had taken place. This was subsequently absorbed and the lung assumed a normal appearance.

the lung spreads itself out in a thin layer between this structure and the parietal chest wall, causing a diffuse haziness of the entire side of the chest from the apex to the base. The shadow is not as dense as that usually encountered in ordinary pleural effusions and the ribs can be distinguished through the involved area; the costophrenic angle likewise is not obliterated. The mediastinal structures rarely show displacement to the opposite side, but in spite of this the entire apex of the lung is overshadowed; with an ordinary effusion, when no mediastinal displacement is present, some degree of aeration of the medial side of the apex usually remains. This is one of the points of differentiation between large pleural effusion and massive consolidation of the lung. As a result I have often been at a loss to distinguish between hemothorax and massive consolidation of the lung when a history was not available. The reason for this peculiar behavior of blood in the pleural cavity is probably that hemothorax usually results from slow bleeding from one point in the lung. Likewise the severe injury incident to gunshot or stab wounds of the chest necessitates the recumbent posture. As a result the blood spreads out in all directions from the bleeding point, between the pleural layers, and shows a tendency to collect along the posterior wall rather than to gravitate to the base of the chest as in ordinary effusions. Mediastinal displacement to the opposite side is observed only rarely. When it does occur as a result of hemothorax it is a grave omen, since sufficient blood to cause displacement of the mediastinal structures represents a loss of blood sufficient to endanger the life of the individual.

INJURY TO THE LUNG

Of the fifty patients who sustained penetrating gunshot wounds of the chest and survived, twelve showed evidence of injury to the lung alone and did not develop hemothorax. The remaining thirty-eight patients showed associated hemothorax. All of these patients had to be repeatedly examined, however, since in many instances of lung injury free from hemothorax at the initial examination, large pleural effusions were found at subsequent examination as a result of continued bleeding of lung wounds.

Of the twenty-eight patients who sustained definitely penetrating stab wounds of the chest and survived, eight showed evidence of injury to the lung unattended with hemothorax, two of these being due to pneumothorax without other apparent complications. The twenty remaining patients showed associated hemothorax. From this it will be seen that by far the greatest number of injuries to the lung are attended with considerable bleeding into the pleural cavity.

It is possible for a bullet to pass completely through the lung without leaving any radiographic evidence of its passage. Likewise a stab wound of the chest may extend well into the lung substance without any immediate radiologic evidence of injury. Subsequent hemorrhage or infection may occur, however.

Hemorrhage Into the Lung.—Hemorrhage into the lung substance, both interstitial and alveolar, usually occurs as the result of severe trauma to the chest. Any severe blow or compression of the chest may, even without fracturing the ribs, produce such hemorrhage into the lung. The condition is not a pneumonic process since it is established at once, immediately following the trauma. The symptoms come on at once and are most severe immediately following the injury. The patient complains of a sense of oppression and intense pain in the chest; dyspnea may be mild or may be present even to the point of "air hunger," and the pulse is rapid and weak. If the injury is severe and the hemorrhage is extensive, hemoptysis may occur.

Radiographically, the area involved shows a definite haziness with large irregular blotchy areas of increased density, but no clearly defined infiltrations or areas of consolidation. Without the history of recent trauma and an indication of the prevailing symptoms, the diagnosis could hardly be made from the roentgenogram.

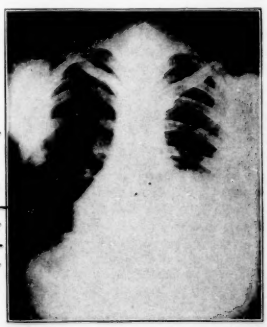


Fig. 4.—Blood does not show the normal tendency to clot in the pleural cavity. Fluid blood has been aspirated from the pleural cavity three months after injury. This is not on account of lack of air, since cases associated with pneumothorax do not show a greater tendency to clot.

Traumatic Pneumonia.—An actual pneumonic process may develop any time within from twenty-four hours to ten days after injury. Traumatic pneumonia occurs much less frequently than traumatic pleurisy. When it does occur, however, it usually takes on the form of lobar pneumonia. In these instances it is probable that the trauma merely provides a weakened resistance which permits the invasion of the pneumonia organisms already present in the respiratory tract.

2. Sante, L. R.: Roentgen-Ray Diagnosis of Pleural Effusion, J. A. M. A. **88**: 215 (Jan. 22) 1927.

Traumatic Pneumothorax.—Rupture of the lung and consequent pneumothorax may result from injury to the chest, either from fracture of the ribs or without evidence of fracture. The degree of pneumothorax may vary from only slight separation of the lung from the chest wall to complete collapse, with the lung crowded into a small space in the region of the hilum. Radiographically, pneumothorax from trauma does not show different characteristics from pneumothorax resulting from any other course. The collapse of the lung removes the normal lung markings from the lung field and produces a decrease in density evidenced by a blackening of the film in the involved area. The collapsed lung shows as a definite shadow and the margin of the collapsed lung can easily be made out. Pneumothorax may likewise result from injury from within the lung as a result of inspiration of an irregular foreign body or from instrumentation in an effort to remove such a foreign body from the air passage.

Traumatic pneumothorax [3] may occur from rupture of the lung without actual violence to the chest wall as a result of intense effort or the performance of some unusual type of exertion. In any event, the radiographic picture is the same. Usually, however, pneumothorax resulting in this manner is not complete, only a small amount of air being evident in the chest. In eighty-nine patients treated during a two year period in the St. Louis City Hospital for fractured ribs sufficiently severe to require hospitalization, only one instance was noted in which pneumothorax was a prominent complication.

Pneumothorax occurs most frequently as a result of stab wound of the chest, having been present nine times in a total of 108 cases. Pneumothorax followed gunshot wound six times in 135 cases.

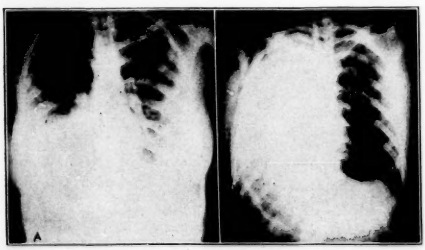


Fig. 5.—*A:* Owing to the failure of blood to clot in the pleural cavity, small wounds of the lung may continue to bleed for a long period. In one case, slowly increasing hemothorax was noted for a period of eighteen days. The physician, therefore, should not be lulled into a sense of security by a single negative radiographic examination made soon after the injury. In this case, in which roentgenographic examination was made a few hours after injury, hemorrhage into the lung substance was seen in the left lower lobe, with little if any attendant hemothorax. *B:* Reexamination three days later revealed continued bleeding to the point of completely filling the pleural cavity. That considerable quantity of blood can be absorbed by the pleura when it is in its unaltered state is unquestioned; after it has undergone chemical change, however, it is doubtful whether any great amount of absorption takes place, and it must be removed.

SUMMARY

1. Fractures of the ribs rarely cause serious injury to the lung. If fractures are multiple and there is wide separation of the fragments, injury to the lung and hemothorax may occur.

2. Subcutaneous emphysema usually does not present a serious complication in injuries to the chest. Occasionally, however, air may be forced under the fascia planes and may envelop the entire body, resulting in death.

3. Traumatic pleurisy exists as a definite clinical entity and does not show any different radiographic appearance than ordinary thickening of the pleura.

4. Hemorrhage into the lung following injury by stab wound or gunshot wound is one of the most frequent results of injury to the chest. Radiographically it appears as a small blotchy area of consolidation in the lung.

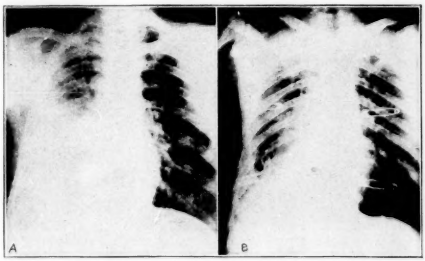


Fig. 6.—*A:* One of the most dreaded complications is infection. The high temperature reaction and pronounced leukocytosis incident to uninfected hemothorax makes it impossible to differentiate hemothorax from empyema without aspiration. *B:* If no infection is present, aspiration is sufficient; if infection is present, it must be treated as is empyema from any other cause. Only three patients out of 174 with penetrating gunshot wounds or stab wounds of the chest who survived developed empyema.

5. Hemothorax associated with injury to the lung is one of the most serious and most frequent complications of injury to the chest. Radiographically hemothorax may present some points of difference from ordinary effusion in the chest. The blood seems to form a thin layer over the entire lung and does not gravitate to the base of the chest. It does not cause the same amount of obscuring of the lung structure throughout the chest and shows uniform involvement of the apexes —a condition not seen in ordinary effusions. Mediastinal displacement rarely occurs and when it is present is a grave omen.

6. A gunshot wound or stab wound of the chest may cause injury to the lung without leaving roentgenographic evidence of any abnormality for several hours after trauma. Subsequent hemorrhage into the lung substance may become evident several hours later, however, and bleeding into the pleural cavity may continue for days until the entire chest is filled with blood. For this reason it is well to make repeated examinations during the first week after injury to the lung to detect any subsequent hemorrhage.

7. Blood ordinarily does not show the normal tendency to clot in the chest cavity; consequently small bleeding points may continue to bleed for a long time, resulting in extensive loss of blood. Unchanged blood can be absorbed by the pleura but when chemical changes have occurred it is doubtful whether any great amount of absorption ever occurs. Chocolate colored fluid has been aspirated from the chest three months after injury. If it is allowed to remain there is danger of infection and empyema.

8. Traumatic pneumonia is much more rare than traumatic pleurisy and usually takes on the form of lobar pneumonia.

3. Sante, L. R.: Pneumothorax, Radiology **10**: 223 (March) 1928.

V 9 192

9. Traumatic pneumothorax is a relatively infrequent complication of other types of injury to the lung. It occurs more frequently with stab wounds than with gunshot wounds. It may occur spontaneously from apparently trivial injury.

THE IMPORTANCE OF APPARENTLY MINOR INJURIES TO THE SPINE *

ROLAND HAMMOND, M.D.
PROVIDENCE, R. I.

Injuries to the spine have always been considered by the profession and the laity alike as grave accidents, presenting possibilities of irreparable injury to the spinal cord, with the attendant symptoms of paralysis, a lingering and distressing illness and death.

Major injuries, showing the well recognized symptoms of injury to the spinal cord, are universally treated with the respect which they deserve, and every effort is made by surgery or mechanotherapy to repair the injury already done and to restore function to the injured spine. It is in the case of the minor accidents, however, that injuries to the vertebral column or spinal cord may occur which demand immediate treatment, and which, if neglected, may lead to permanent disability. Any injury to the spine, no matter how trivial at first sight, should be regarded with suspicion, and at least be accorded the benefit of a careful clinical and roentgen examination.

Wallace,[1] in a careful study of eighty-two injuries to the spine (in a later paper he gave his experience in 250 cases), has been impressed with the serious injury that often results from a slight accident such as a fall on the buttocks or a sudden twist of the back.

It has long been recognized that the cervicothoracic and lumbothoracic regions—the fixed areas of the spine—are the sites of undiscovered fractures. The injury, usually trivial, is due to a fall on the buttocks or back

Fig. 1 (case 1).—Fracture dislocation of the fifth cervical vertebra, produced by diving head first into bed: *A*, before reduction; *B*, after reduction three weeks later under anesthesia; *C*, one and one-half years later.

or to a slight twist of the neck. The back is tender and painful, but these symptoms usually disappear after a few days rest in bed. At this stage comes the difficulty of impressing on the patient the necessity of further rest and treatment. Only too often after a period of comparative comfort lasting for a few weeks or months there ensues a recrudescence of pain and stiffness with marked disability of the back, at times going on to the Kümmell syndrome with the formation of a kyphos.

There is a fixed impression among the laity, which is to a lesser extent prevalent in the medical profession, that a person with a fractured spine is unable to walk,

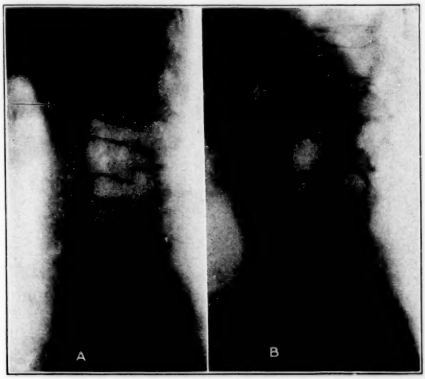


Fig. 2 (case 2).—Compressed fracture of body of first lumbar vertebra, produced by a fall on the buttocks: *A*, before treatment; *B*, condition one and one-half years later.

but it should be strongly emphasized that many compression fractures of the vertebral bodies do not cause permanent injury to the spinal cord.

Another minor injury to the spine, which often goes unrecognized and which receives scant attention in textbooks, is that of fracture of the transverse processes of the lumbar and cervical vertebrae. The acute symptoms usually subside rather quickly, but union of the processes may be delayed and recovery unduly prolonged unless adequate fixation of the spine is instituted early and continued for from ten to twelve weeks in bed. Following this fixation in bed, a back brace should be applied before walking is allowed. In the small series of twenty-six cases of fracture of the spine on which this paper is based, fracture of the transverse processes alone occurred seven times in the lumbar region and once in the cervical region, or nearly one fourth of the entire number.

The following cases have been selected from this series as illustrating the serious harm to some portion of the vertebral column following an apparently trivial injury. Many articles in medical textbooks and journals have stressed the importance of spinal injuries and the ease with which they can occur, and yet more than 50 per cent of these cases go unrecognized in their early stages.

REPORT OF CASES

CASE 1.—J. G., aged 52, was admitted to the Memorial Hospital, Pawtucket, R. I., Feb. 17, 1926, because of pain and stiffness in the neck. Eighteen days previously his wife had jokingly advised him to go to bed. He replied that he would do so, and dived head first into bed. He complained at once of pain and stiffness in the neck which grew progressively worse. On admission to the hospital the neck was stiff in all directions, abduction of the arms was greatly limited, particularly in the right arm, and there was numbness of the hands.

* Read before the Section on Orthopedic Surgery at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

1. Wallace, J. O.: J. Bone & Joint Surg. **21**: 28 (Jan.) 1923.

Roentgen examination showed a backward dislocation of the body of the fifth cervical vertebra for half of its diameter, with fracture of the spinous process of the fifth vertebra.

Reduction of the dislocation was attempted under ether anesthesia and a plaster helmet and cuirass were applied. After anesthesia, roentgen examination showed marked improvement in the position of the vertebrae. The position of hyperextension could not be maintained, however, on account of respiratory difficulty and the cast was cut, allowing some relapse of the deformity. The cast was removed in fifteen days and the patient was kept in bed with sand bags under the shoulders for twelve weeks. He was discharged at the end of fifteen weeks with great improvement in lateral movement and with flexion and extension nearly complete. Abduction in the right arm was to 90 degrees, and in the left arm to 135 degrees. Moderate kyphosis persisted.

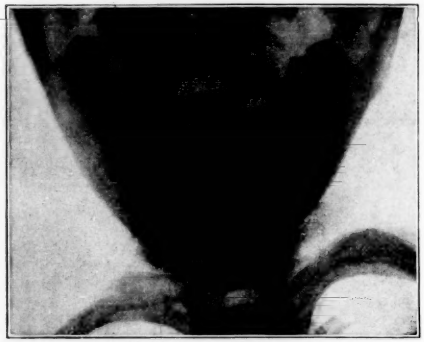


Fig. 3 (case 4).—Dislocation between first and second cervical vertebrae, produced when patient's head was twisted by a playmate.

The patient was seen one year later, May 12, 1928, with flexion normal, but with extension as well as right and left rotation limited one half. He was able to work but tired easily. Roentgen examination showed some degree of the original dislocation persisting, and evidence of a long bridge between the fourth and fifth cervical vertebrae on the anterior surface.

CASE 2.—(This case occurred in the practice of my partner, Dr. Herbert E. Harris, to whom I am indebted for the privilege of reporting it.) R. B., aged 52, admitted to the Memorial Hospital, Nov. 27, 1926, had slipped and fallen the day before, while carrying a pail of water in a mill, striking his back and left elbow and suffering much pain. There was marked tenderness and spasm over the upper lumbar spine. Roentgen examination showed partial crushing of the body of the first lumbar vertebra with slight outward displacement of a small fragment from the right portion of the body of the vertebra. Under ether anesthesia a plaster jacket was applied on a curved Goldthwait frame. Four weeks later he was discharged, with the cast still applied, to remain in bed at home.

The cast was removed, March 19, 1927, and a leather jacket was applied. He was allowed up gradually each day and went to work with the jacket applied, April 23.

One and one-half years later, May 31, 1928, he did not complain of any pain but he had some weakness in the back after kneeling or after excessive use of the back. He worked every day. There was no muscular spasm or limitation of motion in the back movements. Roentgen examination hardly showed a change from the first examination, Nov. 27, 1926, except that the vertebral body had partially filled out.

CASE 3.—M. M., aged 60, admitted to the Memorial Hospital, March 14, 1927, had felt a sudden sharp pain in the lower part of the back one week previously on attempting to lift a heavy pail of water. Since then the back had been very painful and limited in motion. The back had been strapped by a physician without relief. There was slight diffuse tenderness throughout the lumbosacral spine, most marked at the spine of the first lumbar vertebra, with limitation of motion in all directions.

Roentgen-ray examination showed marked wedging of the first lumbar vertebra with destruction of the upper articular surface. The back was strapped and the patient was kept in bed. Ten days later she was walking without pain and discharged to the outpatient department, where a back brace was fitted. She has never worn the brace continuously and has suffered considerable pain during the past year, being unable to work continuously. The patient could not be located for examination.

CASE 4.—C. L., a boy, aged 10, admitted to the Memorial Hospital, April 27, 1927, said that four weeks before admission he had been shaken and his neck had been twisted by another boy. Since that time he had had vague pain in his neck with limitation of motion in the cervical spine, and the head was held tilted to the left. Examination showed the spinous process of the second cervical vertebra more prominent than normal, and the vertebra prominens less prominent than normal. Disalinement of the cervical spine could not be made out. There was slight limitation of motion in the anteroposterior direction and considerable limitation to rotation, especially to the right. Nerve involvement could not be made out. The boy was deaf and was a pupil at the Rhode Island Institute for the Deaf. Roentgen examination showed dislocation between the first and second cervical vertebrae with some rotation of the second vertebra.

A head sling and traction in bed were applied and kept on for five weeks. The patient was then allowed up without support and discharged to his home.

Examination, April 17, 1928, did not show any symptoms. The motions of the neck were complete. Roentgen examination did not show any evidence of dislocation, and the spine was normal in every way.

COMMENT

These cases of fracture of the cervical and lumbar regions of the spine due to injuries which were at first regarded as trivial have resulted in some degree of permanent injury to the spine with resulting symptoms of pain and weakness. The one exception is the case of the 10 year old boy with rotary dislocation between the first and second cervical vertebrae, and here it is necessary to consider the remarkable recuperative powers of youth. Only one patient received prompt treatment on the day of the injury, the time elapsing between the injury and the institution of adequate treatment varying from one to four weeks in the other cases.

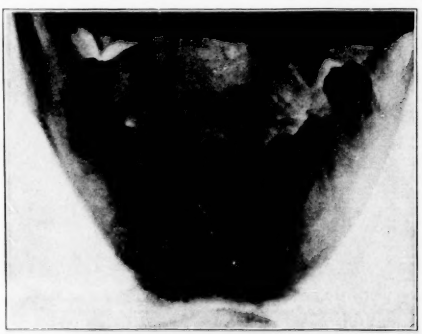


Fig. 4 (case 4).—Result one year later.

The necessity of regarding all injuries to the spine, no matter how simple at first sight, as presenting possibilities of serious and permanent disability, should be strongly emphasized, and patients should be given the benefit of a careful clinical and roentgen examination before being lightly dismissed.

219 Waterman Street.

ABSTRACT OF DISCUSSION

DR. A. R. COLVIN, St. Paul: The spine is composed of a very large number of joints, and an injury to any part of the spine results in a rather widespread injury of the joints. The important aspect of this paper, then, is the necessity of impressing on those who are not accustomed to making examinations of the spine that they must consider the spine as an organ. I see quite a large number of injuries of this character. It is important in any injury of the body to think of the possibility of an injury of the spine. In injuries to the spine the same factors have to be taken into account as in injury of any joint. It used to be said, before the days of roentgenograms, that a sprain was worse than a fracture. It has been found now that such sprains mean fracture in the joint or fracture in the neighborhood of a joint which before was undiscoverable. There is a difference in the reaction of the tissues surrounding a joint, in respect to both injury and infection. The same micro-organism in the same individual at the same time may produce an abscess in one part of the body and a nonsuppurating joint. Reaction of tissues to trauma is just as variable as it is to infection. This variable reaction of the tissues, periarticular, pericapsular, ligamentous—tendinous, if you like—produces a change that in spite of any kind of treatment lasts for months and months.

DR. F. C. KIDNER, Detroit: The diagnosis of the compression fracture is not easy. There are no positive signs, so far as I know, which make the diagnosis possible from that of a sprained back. In both cases there is muscle spasm, pain and limitation of motion. There is only one differential sign which I think is very useful in physical examination, namely, tenderness on deep pressure directly over the spine of the injured vertebra. If this is found, one may be almost certain that there has been a fracture either of the laminae of the articular facets or of the body of the vertebrae—that is, of course, ruling out an injury at the point at which the tenderness is present, such as in a skin lesion. The diagnosis can be made only with the roentgen ray. Many compression fractures do not show anything at all in the anteroposterior view, and some of the slighter ones show very little compression in the lateral view, but the lateral view is absolutely necessary to make the diagnosis. The treatment of the patients is very important. When there is any considerable degree of compression, that compression should be overcome by manipulation, if possible. When it is overcome, then rest in hyperextension is necessary for a long period of time because the soft medullary bone of the bodies of the vertebrae is very slow in forming a firm callus, and if patients are allowed out of the position of hyperextension before five or six months, almost invariably there is a progression of that compression afterward. I do not believe in hyperextension jackets as they are not sufficient to insure the vertebra against further compression. Rest in bed on some form of hyperextension frame is necessary. Many of the patients who seem to have done very well for the first six months or so develop root pains afterward, and these root pains are due to the fact that the callus formation in the vertebrae, which have not been brought back to nearly their normal shape, presses on the nerves as they exit from the spinal foramina. If the callus once forms, the patient is rather sure to be an invalid for life. After the pain is once thoroughly established following a compression fracture of the spine, I have not yet seen it relieved. I wish to make an even stronger plea for long continued and radical treatment, if the men are to return to work. I even believe that in many of the cases a fixation of the spine is advisable at an early date.

DR. H. R. ALLEN, Indianapolis: Dr. Hammond acted wisely in removing the plaster helmet from the patient with the broken neck, because the broken bones in the neck were the only vertical support for the shoulder girdle. It therefore seems plausible not to augment the burden imposed on the broken cervical vertebrae by resting the weight of the plaster cast on the shoulder girdle. Additional wisdom would be demonstrated by devising the helmet so that it and its burden could rest on the hips, since the human anatomy does not present a closer foundation worthy of mechanical consideration.

IODIZED RAPE-SEED OIL (CAMPIODOL) FOR CEREBROSPINAL VISUALIZATION*

CHARLES H. FRAZIER, M.D.
AND
MARK A. GLASER, M.D.
PHILADELPHIA

Since Sicard and Forestier,[1] in 1923, reported the use of iodized poppy-seed oil, lipiodol, for cerebrospinal visualization, the method has received widespread rec-

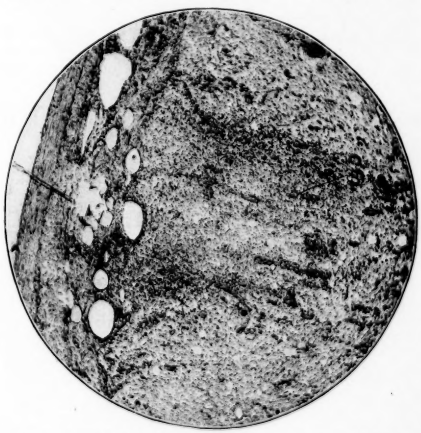


Fig. 1.—Injection of cod liver oil into the spinal subarachnoid space of a dog resulted in death seven days after the operation. This section shows the thickened meninges with infiltration into the subarachnoid space and with a triangular area of infiltration in the posterior columns, the result of direct extension from the meningitis. Reduced slightly from a photomicrograph with a magnification of 57 diameters. (N. W. Winkelman.)

ognition not only as an aid to cerebrospinal visualization but for pulmonary, uterine and sinus photography. The extensive use of the iodized oils and other substances for roentgenographic exploration has prompted us to review the entire subject and to carry out a series of experiments on substances which are opaque to the x-rays, and which might be used for cerebrospinal photography.

We have carefully studied twelve of the elements, among which were strontium, bromine, tungsten, lead,

* From the Laboratory of Surgical Research and the Neurosurgical Department of the University of Pennsylvania.
* Read before the Section on Nervous and Mental Diseases at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

1. Sicard, J. A., and Forestier, J.: Presse méd. **31**: 493 (June 2) 1923.

silver, gold, platinum and iodine. In selecting the elements we were governed by the fundamental laws of the shadow-casting capacity of a substance when exposed to the x-rays. In general, the shadow-casting property is proportional to the atomic weight and the density of the element or compound. The atomic weight is the more important factor.

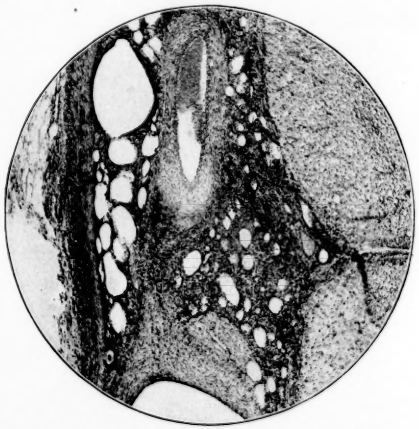


Fig. 2.—Injection of cod liver oil into the spinal subarachnoid space of a dog resulted in death seven days after the operation. This section shows marked meningitis with distention of the subarachnoid space, which is filled with cells, mainly of the polymorphonuclear type. Extension into the cord substance, as in figure 1, did not occur. Reduced slightly from a photomicrograph with a magnification of 57 diameters. (N. W. Winkelman.)

In order to eliminate rapidly the substances which did not throw sufficient shadow, the following technic was employed: A saturated solution, in distilled water,

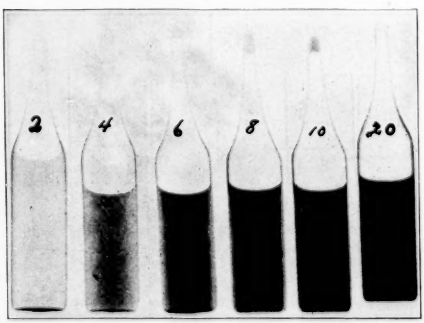


Fig. 3.—Demonstration of the intensity of the shadow cast by increasing percentages of iodine in the rape-seed oil. It is evident that the higher the iodine content, the more opaque is the shadow cast. The concentration of iodine varies from 2 to 20 per cent.

of the substance under examination, was compared with a 5 per cent solution of sodium iodide. If the shadow cast was less than that of the sodium iodide solution, the material was discarded. If equal or greater in its shadow-casting property, the solution was tested for toxicity on dogs by mouth, by subcutaneous injection and by injection into the cisterna magna.

We found that iodine, with an atomic weight of 126.9, was the element of choice. It casts an adequate shadow even in low percentages; it combines readily with other substances, and many of its compounds are well tolerated by the tissues and are of very low toxicity. In attempting to determine the best iodine compound for cerebrospinal photography we used various iodides, iodates, periodates, iodophenolphthaleins, iodized fluoresceins, and iodized oleic, benzoic, quinoline and thymol compounds. For the preparation of these various substances we are indebted to Dr. G. W. Raiziss of the Dermatological Research Laboratories. Most of the original preparations that he made cast excellent shadows, but in the quantities necessary for cerebrospinal visualization they proved too toxic. We decided that although, from the standpoint of absorption, solutions were much more suitable than oils or emulsions, their toxicity precluded their employment.

Our attention was then directed to the use of oils. Oils, with the exception of mineral and essential oils,

Comparison of Iodine Content of Sodium Iodide and Iodized Rape-Seed Oil

Sodium Iodide Solutions

Solution	Sodium Iodide, Gm.	Water, Cc.	Iodine, Per Cent	Sodium Iodide, Per Cent
1.....	0.12	5	2	2.4
2.....	0.24	5	4	4.8
3.....	0.36	5	6	7.2
4.....	0.48	5	8	9.6
5.....	0.6	5	10	12.0
6.....	1.2	5	20	24.0
7.....	1.8	5	30	36.0
8.....	2.4	5	40	48.0
9.....	3.6	5	60	72.0
10.....	4.8	5	80	96.0
11.....	6.0	5	100	120.0

Iodized Rape-Seed Oil Mixtures

Solution	Iodized Rape-Seed, Gm.	Ethyl Olive Oil, Cc.	Iodine, Per Cent	Iodized Rape-Seed, Per Cent
1.....	6.25	5	2	5
2.....	0.5	5	4	10
3.....	0.75	5	6	15
4.....	1.0	5	8	20
5.....	1.25	5	10	25
6.....	2.5	5	20	50
7.....	3.75	5	30	75
8.....	5 cc.	..	40	100

are mixtures of the glyceryl esters of the fatty acids. Each particular oil usually contains a number of these esters of the various acids. The ability to bind iodine with the oil depends on the unsaturation of the fatty acids. These are of three types: the acetic series, completely saturated and thus unable to bind iodine; the oleic series, unsaturated, the acids of which are capable of absorbing two atoms of a halogen to form a saturated compound, and the linoleic series, still more unsaturated, being capable of absorbing four atoms of a halogen. Each particular oil has an iodine value that is equivalent to the number of grams of iodine absorbed by 100 Gm. of the oil, depending on the proportion of unsaturated acids present in the oil.

In the unsaturated oils iodine is held in firm union. It is, however, very slowly liberated, so that its presence has been ascertained as long as two years after injection into the spinal subarachnoid space. We have investigated a number of animal and vegetable oils before and after iodinization in order to ascertain the tissue reaction to them. In selecting these we were guided by the specific gravity, the iodine value and the viscosity of the oil. The percentage of iodine in the final

product, after combining with the unsaturated bond in the oils (cod liver oil, menhaden oil, sweet almond oil, and rape-seed oil) as finally calculated, varies from 40 to 60 per cent. This percentage of iodine is not necessary for cerebrospinal visualization, but in the small amounts used for spinal subarachnoidal study the opacity is striking. Experimentally we have found that

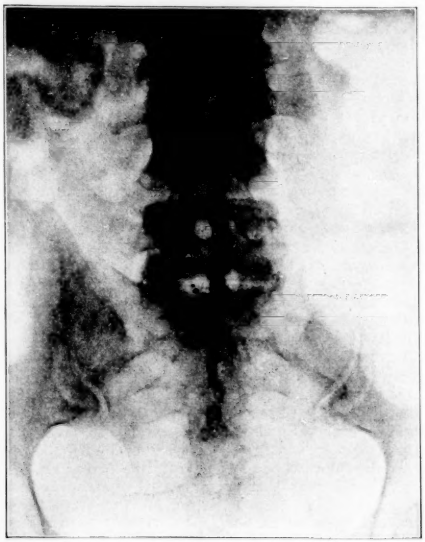


Fig. 4.—Demonstration of a partial block opposite the lower lumbar vertebrae.

from 5 to 10 per cent of iodine in the compound will give a shadow, although the contrast against osseous tissue may not be as striking as is desired.

The animal oils investigated by us became dark brown or black when iodized, were of extremely high viscosity, and proved definitely irritating. The appearance of the subarachnoid tissues after the injection of cod liver oil is shown in figures 1 and 2.

Our attention was then directed to the vegetable oils. We investigated those which were well tolerated by the animals and finally selected rape-seed oil. This oil, of the family of Cruciferas, is obtained from *Brassica campestris*. It is nonirritating when injected into the subarachnoid space, is nontoxic, and is of a low specific gravity (0.913) and of low viscosity (250 at 100 F.).

Iodized rape-seed oil is a light yellowish product having a specific gravity of 1.289 and deteriorating very slowly when exposed to light or heat. The accompanying table affords a comparison of the iodine content of this oil with that of sodium iodide. Figure 3 shows the comparative shadows cast by iodized rape-seed oil. It demonstrates clearly that the intensity of the shadow depends on the percentage of iodine in the substance.

A very definite advantage of rape-seed oil other than its very low toxicity and nonirritating properties is its initial low viscosity. A thick viscous oil has many disadvantages, especially for injection into the spinal subarachnoid space. The oil should be of such viscosity as to flow easily through a needle of small size (20 or 22) without the exertion of undue pressure. It should not be so thick as to produce false blocks by adherence to the spinal roots, nor should it globulate excessively. These difficulties have frequently been encountered with the oils now used. Furthermore, it should change its position rapidly with a change in the patient's position. These physical properties are of considerable importance, and in iodized rape-seed oil we believe that we have found an ideal product.

Having determined the superiority of rape-seed oil for spinal subarachnoidal injection, we turned our attention to two other aspects of the subject. Since opaque substances have been used for photography of the peripheral vessels, the question naturally arose, Can the cerebral vessels be outlined? Egas Moniz[2] has attempted the visualization of the cerebral vessels with various iodine and bromine salts. In this he has been partly successful, but the procedure needs further elaboration before it can be generally applied to man. Another thought occurred to us: If an emulsion of the oil can be prepared which will diffuse rapidly with spinal fluid, such an emulsion, introduced into the ventricles, would be ideal for ventriculography.

For both of these purposes an oil with a specific gravity less than that of straight iodized rape-seed oil is desirable. Such an oil could be injected intra-arterially through a very fine needle without injury to the vessel.

Fig. 5.—Roentgenographic appearance of dog after the injection into the cisterna magna of 2 cc. of iodized rape-seed oil diluted with ethyl olive oil (4:1).

It would furthermore not give the characteristic beading effect that is seen when oils of high specific gravity are used.

In order to obtain an oil of low specific gravity to be used as the diluting oil, we experimented with liquid

2. Egas Moniz: Presse méd. **35**: 969 (Aug. 6) 1927.

petrolatum, olive oil, unmodified rape-seed oil and the ethyl esters of olive oil. Liquid petrolatum as a diluent proved slightly irritating. Olive oil, although used as a diluent in some of the oils now used, so definitely

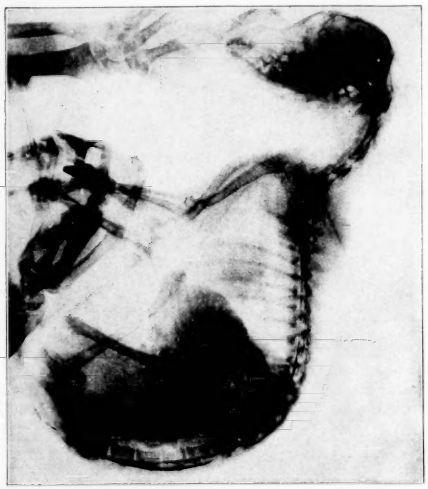


Fig. 6.—Appearance of dog after the injection into the cisterna magna of 4 cc. of undiluted iodized rape-seed oil.

increased the toxicity of the iodized rape-seed oil that it was discarded. Unmodified rape-seed oil, although satisfactory to a degree, gave us a product with a viscosity slightly higher than was considered desirable. Ethyl olive oil [3] seemed the ideal diluent. Because of its very low specific gravity, only a small amount is required, thus making it possible to retain a larger amount of iodine in the end-product per cubic centimeter. Ethyl olive oil is much less toxic than unmodified olive oil and, furthermore, seems to protect the iodized rape-seed oil from deterioration on exposure to light or heat. When equal parts of ethyl olive oil and iodized rape-seed oil are mixed, a preparation with a specific gravity of 1.061 is obtained. This is the preparation we used in our experiments on vascular and ventricular photography.

We have given our dogs as much as 6.75 cc. of straight iodized rape-seed oil per kilogram of body weight by mouth, and we have injected 1.5 cc. per kilogram of body weight into the internal carotid artery without the slightest toxic effects. In dogs weighing from 4 to 6 Kg., we have repeatedly injected as much as from 4 to 6 cc. into the cisterna magna without ill effect. Eight animals so injected are alive in the laboratory kennels from three to six months after the injection.

However, the introduction of any foreign substance into the spinal subarachnoid space calls forth a cellular reaction. The cell counts in eight of our dogs in which 2 cc. of the iodized oil had been injected by cisternal puncture varied from 250 to 800 per cubic millimeter. As a rule, the highest count appeared on the second day after the injection and decreased rapidly, so that after five or six days the cell count varied between 5 and 15. In the human cases the cell count has also been variable. In a case of hydrocephalus, in which 7 cc. of the oil was injected into the ventricles, the cell count rose to 310 on the second day and thereafter decreased. In another hydrocephalic baby in whom 3.5 cc. of the oil was injected intraventricularly, the highest cell count was 19 three days after the injection. After the injection of from 1 to 1.5 cc. of the oil into the spinal subarachnoid space, the counts have varied from 11 to 14 cells per cubic millimeter. It must therefore be apparent that although there occurs a cellular reaction to the iodized rape-seed oil, it is mild and rapidly subsides as compared with other preparations. There has not been any noticeable difference in the cell count after the use of straight iodized rape-seed oil, the oil diluted with unmodified rape-seed, or ethyl olive oil.

The indications for the use of the iodized oils in spinal lesions are limited. Their use cannot and should not in any way take the place of a careful neurologic examination. In the exceptional case with uncertain neurologic signs, if doubt as to the level of the lesion exists, these oils may be used to advantage. The presence or absence of spinal block can first be determined by the manometric estimation, and the exact level, if doubt exists, may be determined by the use of the iodized oil. We have used from 1 to 1.5 cc. injected either by cisternal or by lumbar puncture. In cases of partial block it is well to observe the flow of the oil under the fluoroscope after altering the patient's position. We have not found any evidence of encapsulation six months after its introduction into the spinal subarachnoid space of the dog. The rapidity with which

Fig. 7.—Roentgenographic appearance of dog's head after the injection of 5 cc. of iodized rape-seed oil diluted with ethyl olive oil (4: 1).

the oil travels the length of the cord should be noted, as should also any hesitancy in its flow. In the human subject we have used an iodized oil consisting of four parts of iodized rape-seed oil and one part of ethyl olive oil. Figure 4 shows the picture obtained in a patient after cisternal injection of 1.5 cc. of the oil. This patient had an old compression fracture. Under the fluoroscope the flow of the oil was seen to hesitate opposite the lower lumbar spine. In this we find definite evidence of partial block.

3. A mixture of olive oil, absolute ethyl alcohol and concentrated sulphuric acid is refluxed four hours. The alcohol solution of ethyl esters formed is washed with 10 volumes of water. The esters are separated and dried with anhydrous sodium sulphate. If any ethyl alcohol is present, it is distilled off. The oil obtained in this way is then further purified by distillation in vacuo (65 mm.) at temperatures ranging from 190 to 225 C.

Figures 5 and 6 show the appearance of two dogs after cisternal injection of our iodized oil. The pictures of the dogs were taken with the animals perfectly flat, which accounts for the varying location of the oil.

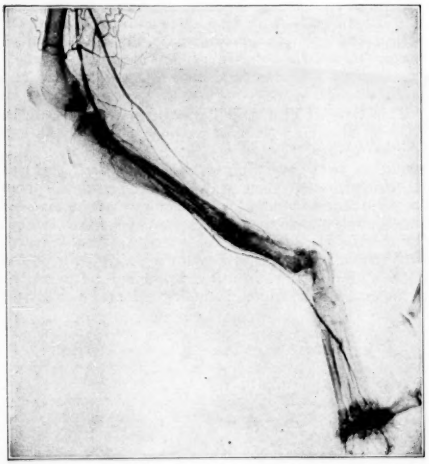


Fig. 8.—Hind leg of the dog after the femoral injection of 4 cc. of iodized oil (4: 1).

Visualization of the cerebral arteries may prove to be of considerable diagnostic importance. We have injected 5 cc. of iodized rape-seed oil, diluted with ethyl olive oil, into the carotid artery of a dog without any ill effects (fig. 7). The roentgenogram must be made at the time of injection because the oil is rapidly dissipated and hardly a trace remains in the cerebral vessels two minutes after the injection. In certain cerebral tumors with vague localizing signs, displacement of the normal vascular arrangement or a definite increase in vascularity in the tumor area may prove of considerable value in determining the position and the dimensions of a cerebral tumor. There is no real reason why it should not be as easy to outline the cerebral vessels as clearly as we have outlined the peripheral ones (fig. 8).

While ventriculography by the injection of air provides us with a clear outline of the ventricles, this procedure is not entirely devoid of risk, especially in those cases in which the ventricles are widely dilated and under extreme pressure. It was with a view to finding a substitute for air that this investigation was primarily undertaken. To be able to obtain an outline of the ventricles by the injection of 4 or 5 cc. of a nontoxic, nonirritating preparation obviously would be a much less formidable procedure than the withdrawal of all the cerebrospinal fluid from an overdistended ventricular system, as is necessary for air ventriculography.

That an outline of the cerebral ventricles can be obtained by the use of iodized rape-seed oil we have demonstrated (fig. 9), but it is not yet as satisfactory as we would like it to be. We hope to have an oil which will diffuse in the fluid of the ventricle, so that a shadow of the entire ventricle can be obtained. We have attempted the emulsification of the iodized oil with spinal fluid by shaking it in a test tube before introducing it into the ventricles. Since the size of the ventricles varies, especially under pathologic conditions, we have estimated their size by the fluorescein colorimetric method first. The iodized oil in emulsion should not be less than one-fiftieth the estimated size of the ventricle. In one instance we were able to demonstrate an intraventricular tumor after the introduction of 2 cc. of the iodized oil (4: 1).

More recently we have tried a mixture of 5 cc. of straight iodized rape-seed oil, 5 cc. of a 35 per cent acacia solution and 10 cc. of distilled water. We believe that such a mixture offers more promise of good results. It will remain to be determined whether this amount of acacia will prove detrimental.

We submit this investigation as being somewhat in the nature of a preliminary report. The chemical problems involved were much more intricate and complicated than was anticipated, and the major demonstrations have been made in the laboratory. But we believe that in iodized rape-seed oil, for which the name campiodol has been proposed, we have a preparation superior to other oils now in the market in that it is nontoxic and less irritating. Furthermore, it has a lower viscosity, will flow readily through a needle of fine caliber and, because of its low viscosity, will not globulate as do the oils of higher viscosity. Its serviceability in spinal photography has been demonstrated. That it is rapidly dissipated after injection into the cerebral circulation opens a possible field for service in the determination of the topography of subcortical tumors. That it may be injected into the ventricles without ill effect encourages us to believe that, after further refinements, we may have a simpler and safer method for studying ventricular topography.

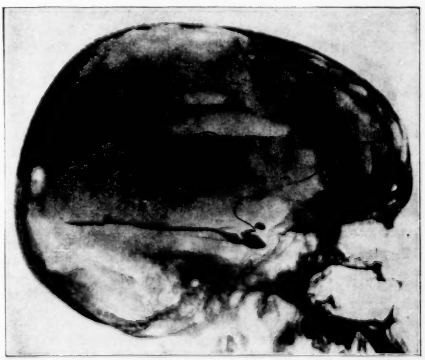


Fig. 9.—Demonstration of intraventricular tumor after the injection of 2 cc. of the iodized oil into the ventricles (4: 1).

SUMMARY

As the result of various substances for cerebrospinal photography, the iodized oils seem at this time to offer the greatest promise. Iodized rape-seed oil (campiodol) diluted with ethyl olive oil has been found to be the most satisfactory of the oils investigated. Physically and biologically it seems to be ideal, and its practical value after spinal, cisternal, vascular and ventricular injection has been demonstrated.

Thirty-Sixth and Spruce streets.

ABSTRACT OF DISCUSSION

DR. GEORGE W. RAIZISS, Philadelphia: Any product which is to be used for intraspinal or intraventricular injection must be exceedingly nontoxic, for the spinal fluid ordinarily tolerates only minute quantities of chemical compounds. Thus, in treating syphilis intraspinally not more than 1 or 2 mg. of arsenic, and still smaller quantities of mercury, can be introduced safely. Therefore, in preparing substances for cerebrospinal visualization heavy metals and very soluble substances, e. g., sodium or potassium iodide, are undesirable. The most satisfactory types of compound to use are oils, which are usually insoluble in the spinal fluid. In selecting the best kind of oil, we considered various drying and nondrying vegetable oils. The drying oils readily absorb oxygen and thus deteriorate. On this account this class of compounds was abandoned in favor of the nondrying oils. Of the latter we selected rape-seed oil, which contains primarily stearic, oleic and erucic acids, the latter two of which are organic compounds with unsaturated carbon atoms; i. e., all the valences of the carbon atoms are not occupied, so that it is therefore possible to introduce various substituents, such as hydrogen or halogen. For this purpose we selected iodine, because it is least harmful to the human body. In preparing our iodized oil, it was necessary to elaborate a special method which would yield the minimum amount of toxic by-products. To illustrate: if instead of ethyl alcohol we use methyl alcohol in the process of preparation, a more toxic end-product results. The same effect is produced if we employ ether as a diluent instead of chloroform. Another important problem was to eliminate the excess of free iodine from the final product, since otherwise deterioration accompanied by increased toxicity occurs. For this purpose large amounts of potassium iodide were found most efficient. We finally obtained an iodine compound which was less toxic than any other similar compound studied in our laboratories. In a previous investigation, Greenbaum and I found that iodine in the form of potassium iodide can be tolerated intravenously by rabbits in doses of 600 mg. per kilogram of body weight, while in the form of sodium iodide 1.5 Gm. of elemental iodine can be tolerated. In the case of our iodized oil, it also can be borne in doses corresponding to 1.5 Gm. of elemental iodine per kilogram of body weight. However, if the product is not prepared with the greatest caution and by a highly standardized method, its toxicity will be found markedly increased. A difficult problem in connection with this drug is to render it stable, because it gradually deteriorates. Since it is germicidal to some extent, it can be readily sterilized.

DR. CHARLES H. FRAZIER, Philadelphia: I presented this paper with some embarrassment. The major problems were concerned with chemical research for the pursuance of which I was wholly unfit; therefore I wish to acknowledge my indebtedness to Dr. Raiziss, Dr. Glaser and Dr. Ravdin for their experimental studies.

Hygiene or Preventive Medicine.—There is no more important person in the ranks of health workers than the general practitioner of medicine. He can do much to make or to mar any effort put forward by the more specialized public health service, and if the greatest measure of success is to attend our work the general practitioner must understand our aims and must fit into each of our schemes. To enable him to do this he must be given a correct sense of proportion when a medical student. You will recollect that in the revised medical curriculum of the General Medical Council it is laid down that the subects of hygiene and public health should be included in every course of professional study and examination, and that courses of instruction in these subjects should be taken concurrently with the later stages of clinical instruction. The council further resolved that throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine. I am never quite clear in my mind as to where hygiene ends and public health begins, and, so far as medical students are concerned, I would rather refer to the whole subject as preventive medicine.—Jameson, W. W.: *Brit. M. J.*, Oct. 27, 1928.

FIBROSIS OF THE VESICAL NECK*

ROBERT H. HERBST, M.D.
CHICAGO

Fibrosis of the vesical neck, often called "contracture" of the neck of the bladder, is an obstruction at the vesical orifice, and is produced by the contraction of fibrous tissue which has replaced the muscle fibers of the internal sphincter and the adjacent bladder and urethral walls.

This type of obstruction was described as early as 1856 by Mercier.[1] From a review of the literature it is quite evident that some writers have confused this condition with other types of obstruction, such as atrophic prostate, valves of the prostatic urethra, hypertrophy of the trigon and so-called atony of the bladder. Indeed, today these cases are classed by some as median bar obstruction. It is my belief that the term "median bar" should be applied to elevations which occur on the floor of the bladder, from the immediate bladder neck to the edge of the trigon, including enlarged subcervical glands, median lobe hypertrophy, and hypertrophy of the trigonal muscle. The term contracture or fibrosis of the vesical neck should be applied to those cases in which the entire circumference of the neck of the bladder is largely converted into fibrous tissue. The latter type may in many instances have a different etiology and symptomatology and may often require more radical measures for its relief.

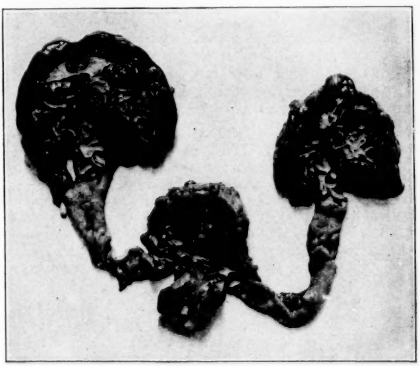


Fig. 1.—Urinary tract of infant, aged 9 months, showing contracted thick-walled bladder and hypertrophic vesical neck causing obstruction, with hydro-ureter and hydronephrosis.

ETIOLOGY

Although the symptoms of bladder neck fibrosis may not be marked until adult life or later, it is surprising to see how many of these patients give a history of bladder disturbances in childhood and even in infancy which would lead one to look for some congenital origin for this condition.

As the uropathies of infancy and childhood are being more thoroughly investigated, more cases are coming to light which show hypertrophy of the neck of the bladder, involving the internal sphincter region and the

* Read before the Section on Urology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

1. Mercier: Recherches de le traitement des maladies des organes génito-urines, Paris, 1856.

V 91
1928

adjacent bladder wall. Looked at grossly, they resemble congenital pyloric stenosis, and microscopically their appearance is also quite similar, showing hypertrophy of muscle tissue.

The obstruction produced by such hypertrophy of the bladder neck is shown in the following case (fig. 1):

CASE 1.—A boy, aged 9 months, admitted to the Presbyterian Hospital because of intermittent fever and loss of weight for the past five weeks, had refused feedings for the past week. Since the beginning of the trouble, he had cried at each urination, which was usually accompanied with struggling. He had had a cold at 1½ months, but no other illnesses.

The external genitalia were normal. The bladder was found 2 cm. above the symphysis, both on percussion and on palpation. A catheter was introduced into the bladder without difficulty, and 110 cc. of urine was removed.

On analysis the urine showed a 4 mm. ring of albumin; an alkaline reaction, and absence of sugar. The cell count was 2,240 per cubic millimeter. The smears showed gram-negative rods. A culture yielded *Bacillus proteus.*

Blood examination showed: hemoglobin, 45; red blood cells, 2,930,000; and white blood cells, 26,100. The Pirquet test was negative. The blood calcium was 10.3. The urea was 114.3; the uric acid, 11.4; the creatinine, 3.2, the total nonprotein nitrogen, 193.2, and the chlorides, 740.

Although the bladder was kept empty by repeated catheterization, the symptoms progressed. The child began to twitch, coma developed, and he died seventeen days after admission to the hospital.

At autopsy the anatomic diagnosis was bilateral hydronephrosis and hydro-ureter. There was hypertrophy of the wall of the urinary bladder, and extensive retrogressive changes in the kidneys had taken place.

The lumen of the penile portion of the urethra had a circumference of about 8 mm. When the pelvic organs were removed, the urethra was cut across beneath the symphysis pubis. The circumference of the distal portion was 13 or 14 mm., the proximal portion about 22 mm. The wall of the urinary bladder was stiff, because of the thickness of the muscular layer. The total wall had a thickness of 8 mm. Both ureters were dilated and their orifices were not obstructed. The calices of both kidneys were dilated.

In histologic sections made from the wall of the urinary bladder at the neck, the wall was approximately 10 mm. thick, and of that, at least seven eighths was made up of smooth muscle. In the muscle cut transversely there were many vacuoles in the individual muscle fibers, in many instances occupying almost all of the cross-section of the fiber. These were also easily seen in the muscles cut longitudinally. The lining was thrown into multiple folds, the epithelium being in most places three or four cells high.

The child's death was due to uremia subsequent to obstruction to the outflow of urine from the bladder. There was no obstruction in the lumen of the prostatic portion of the urethra. The urachus was closed. There was hypertrophy of the wall of the neck of the bladder extending about 1.5 cm. beyond the colliculus seminalis. Any obstruction during life was probably due to this thick neck, acting as a sphincter when the bladder contracted. The child had evidently had this obstruction from the beginning of its urinary function. However, the bladder was not greatly dilated, but rather contracted, with a marked thickening of its wall.

A similar condition is seen in later life in cases of fibrosis, the hypertrophied neck having undergone a fibrotic change as a result of trauma or infection, or both. It is this massive hypertrophy of the bladder wall which causes regurgitation up the ureters, resulting in extensive upper urinary tract changes and, in these cases, the common symptom of active incontinence.

This hypertrophy, when not pronounced enough to cause much obstruction, may not produce alterations in the bladder and upper urinary tract sufficient to cause severe symptoms in early life. However, the trauma produced at the bladder neck by months or years of imperfect urinary function, often associated with infection, may convert these hypertrophic muscle fibers into fibrous tissue.

I have seen this condition in a boy, aged 11 years, in whom symptoms of obstruction dated back to infancy and gradually became more severe. His death was caused by pyelonephritis and, at autopsy, a marked obstruction was found at the bladder neck, which on microscopic examination showed some hypertrophic muscle tissue with areas of fibrous tissue.

It is not unlikely that some, if not many, cases of fibrosis seen in adult life start as hypertrophy of the muscle tissue at the neck of the bladder, perhaps congenital in nature, dating back to some fault in embryologic evolution.

That a neurologic element is present in some cases of fibrosis is difficult to overlook, although rarely does

Fig. 2.—Cystogram showing contracted bladder with dome formation at the vertex, regurgitation up the ureters, hydro-ureter and hydronephrosis caused by fibrosis of the vesical neck.

one find other evidences of cord disease. Necker[2] laid stress on mild forms of spina bifida occulta as a possible cause of nonobstructive cases, the obstruction being a later development.

The thickened wall of the bladder, with its limited capacity, is quite different from what one finds in other obstructive conditions. Instead of a large dilated bladder with moderate hypertrophy of the muscle coat, one usually finds in cases of fibrosis a small contracted bladder with massive thickening and hypertrophy of the wall. This may be another point in favor of the congenital origin of this condition; namely, that the hypertrophy of the bladder wall is only a part of a general process including also the hypertrophy of the neck of the bladder. Therefore, the thickened bladder wall seen in infants may not be entirely caused by over-

2. Necker: Klin. Wchnschr. **39**: 1161-1165 (Sept. 30) 1926.

work on the part of the bladder in emptying its contents. It may be a congenital developmental process.

Infection of the prostate gland with extension to the internal sphincter and adjacent bladder wall is believed by some to play a part in the etiology. Although fibrous tissue may be found in the region of the bladder neck in some cases of prostatitis, rarely does it produce the clinical picture or pathologic changes in the upper urinary tract that are found in true fibrosis of the vesical neck. Stone in the bladder and infections secondary to upper urinary tract infections may produce a fibrous change at the bladder neck, which, however, rarely exhibits the clinical picture of a primary fibrosis, if I may use this term.

SYMPTOMS

Early in the course of fibrosis, symptoms may be slight or even absent. However, on close questioning in the more advanced cases or in those found in middle

Fig. 3.—Cystogram showing contracted bladder with irregular outline, dome formation at vertex and regurgitation up the ureters, and hydroureter caused by fibrosis of the vesical neck.

or later life, one will find that symptoms of mild dysuria have been present for many years.

The symptoms may be divided into two groups: those referable to the bladder and those produced by upper urinary tract changes.

The bladder symptoms are as a rule quite different from those produced by other forms of obstruction. The bladder is not commonly dilated, but small, and often contracted because of the hypertrophy of the muscular wall. This condition frequently causes an active form of incontinence, instead of the passive overflow type seen in other forms of obstruction. For this reason, the urgency and frequency are more prominent.

Complete retention is not often seen, because of the powerful contraction of the hypertrophic bladder wall. Regurgitation to the upper urinary tract is more pronounced than in most other forms of obstruction. This in turn causes extensive changes, the symptoms of which are pain in the flanks, and, when infection develops, chills, fever, nausea, vomiting and the symptoms of impaired renal function; viz., sleepiness, stupor, convulsions and coma.

PHYSICAL OBSERVATIONS

On rectal examination the prostate is usually about normal in size and in consistency. When an instrument is introduced into the bladder, a resistance may be encountered at the immediate bladder neck which usually is easily overcome.

Cystoscopic investigations show that in uncomplicated cases there is marked trabeculation, the trabeculae being very heavy with deep cellules between them. The vertex of the bladder is more contracted than the lower part, causing the formation of a dome which at times may be mistaken for a diverticulum. The internal urethral orifice appears rigid and elevated, but the prostate does not protrude into the bladder. The trigon may be raised in the form of a plateau, as a result of hypertrophy of its muscles.

The cystogram often gives one a better idea of the bladder malformations than does cystoscopy. In the x-ray films the dome formation of the vertex is seen with a marked irregularity of the bladder outline, caused by the trabeculation. Diverticulum is not uncommon, being caused by obstruction and increased intracystic pressure acting on weak areas in the bladder wall.

Regurgitation up the ureters to the kidney pelves and calices may occur, causing more or less wide dilatation of these structures. For this reason it is not always necessary to make ureteropyelograms in order to visualize the upper urinary tract. Owing to the severe back pressure on the renal parenchyma, the functional tests and the chemical examination of the blood indicate that more serious injury has been produced than is seen in the average case of prostatic obstruction.

Cases 2 and 3 are reported to illustrate the difference in the clinical course of the average case of fibrosis of the neck of the bladder from other forms of obstruction.

CASE 2.—A man, aged 45, on admission to the hospital, complained of incontinence for the past six months. He had had difficulty in starting the stream for at least fifteen years, and thought that micturition required more effort than when he was younger. He had never had any pain referable to the urinary tract, or the act of urination, although frequency was marked. This frequency he thought caused insomnia, from which he had suffered for six years. The incontinence was of the active type and, instead of dribbling, he projected the urine when the desire came, without control.

The external genitalia were normal. The prostate on rectal examination appeared about normal in size and consistency. Cystoscopic examination revealed marked trabeculation of the bladder. The vertex of the bladder was more contracted than the lower part, forming a dome. The prostate did not protrude into the bladder more than normally. The internal urethral orifice was small, and an increased resistance was felt in this region when the cystoscope was introduced.

A cystogram (fig. 2), taken after 12 ounces of 15 per cent solution of sodium iodide had been injected into the bladder, showed the dome formation previously seen during cystoscopy. The bladder was not enlarged and appeared somewhat contracted. The contrast fluid had regurgitated up both ureters and showed a pronounced dilatation of the right ureter and a hydronephrosis of the right kidney. The left ureter was dilated in its lower third. When the ureters were catheterized the left catheter stopped at 10 cm. from the orifice while the right passed to the kidney. The patient was examined fluoroscopically while contrast fluid was injected into the left catheter and the following phenomenon was observed: The solution backed down the left ureter, crossed the bladder, passed up

the right ureter to the kidney, and was seen to drain out of this pelvis through the catheter. This demonstrated just about what happened each time the patient urinated. The violent contraction of the hypertrophic bladder wall forced part of the urine through the narrowed fibrotic urethral orifice and part of it up the ureters to the kidney pelves. This explained the force of the active incontinence exhibited by the patient and also the extensive dilatation and impaired function of the upper urinary tract.

This phenomenon would lead one to think of a possible neurologic element in the etiology. However, a careful study failed to show any nerve lesion which might account for the bladder condition. The patient refused operation, left the hospital, and died two months later, probably from pyonephrosis and uremia. No autopsy was obtained.

The clinical course in this case was quite different from that which is seen in other forms of lower urinary tract obstruction, the hypertrophied contracted bladder causing regurgitation and rapid destruction in the upper urinary tract. This occurred in a man only 45 years of age, whose symptoms dated back fifteen years and whose primary condition probably dated back to birth.

CASE 3.—A man, aged 37, on admission to the hospital, complained of incontinence of four years' duration, which was of the dribbling type, and of frequency and some pain on urination for the past few months.

The general physical examination was negative. The external genitalia were normal. The prostate on rectal examination was normal in size and consistency.

At cystoscopic examination the bladder showed some injection and a marked degree of trabeculation. The vertex was more contracted than the rest of the bladder, forming a dome. The prostate did not project into the bladder more than normally, but the trigon appeared raised. There was a noticeable resistance as the cystoscope passed through the internal urethral orifice.

A cystogram (fig. 3) showed that the bladder was not greatly enlarged, but its border was irregular as a result of trabeculation. The dome seen on cystoscopic examination was well visualized, and the opaque solution had been regurgitated up the ureters, showing a dilatation of both ureters and renal pelves.

The renal function was badly impaired, as shown by the phenolsulphonphthalein output and the chemical analysis of the blood.

The neurologic examination was negative, as was the blood Wassermann reaction and the spinal fluid study.

A resection of the fibrosed bladder neck was made through a suprapubic cystostomy.

PATHOLOGY

The retrogressive alterations in the upper urinary tract are usually more pronounced and develop more rapidly in fibrosis than in any other form of obstruction. This is probably dependent on the massive hypertrophy of the muscular wall of the bladder which is associated with this form of obstruction. The fibrosis at the neck may be part of a generalized process more or less involving the whole urinary tract, which might account for the extensive and early pathologic changes seen. If there are any weak regions in the bladder musculature, diverticula are almost certain to develop, because of the decided increase in intracystic pressure, which is usually greater in fibrosis than in other forms of obstruction.

Both the gross and the microscopic observations in fibrosis of the neck of the bladder and in congenital pyloric stenosis are strikingly similar.

In infants the bladder neck, including the proximal part of the urethra and the adjacent bladder wall, shows a massive hypertrophy. This is the same picture that is seen in congenital pyloric stenosis. Later a change of the hypertrophic muscles into fibrous tissue is seen, probably owing in part to the action of the chlorides of the urine. In congenital pyloric stenosis the same evolution is seen in later life, probably as a result of the action of the gastric juice. If hypertrophy of the bladder neck musculature is the primary pathologic change and fibrosis the end-result, these cases might well be called congenital hypertrophy of the neck of the bladder.

A fibrosis of the neck of the bladder may be associated with benign hypertrophy of the prostate; and the fibrosis, in some instances, may be more responsible for the obstruction than the prostate. In these cases, poor functional results may be seen following prostatectomy unless the fibrotic neck is recognized and removed with the prostate.

DIAGNOSIS

The differential diagnosis from certain nerve bladders may be difficult; in fact, in some cases the changes are not unlike those due to lesions of the urinary nerve centers. The following case is an example:

Fig. 4.—Defect of spine in case of spina bifida (cystogram shown in figure 5).

CASE 4.—A man, aged 26, stated on admission that although he had been born with a tumor (spina bifida) in the region of the sacrum (fig. 4) his urinary function was good until he was 14 years old, when he was thrown from a horse and suffered an injury to his back. This injury was followed by difficult urination, and later by incontinence, which persisted. Five years later a suprapubic cystotomy was made because the patient had severe pain and frequency. This wound never completely closed, leaving a fistula.

Cystoscopic examination showed marked injection and trabeculation of the bladder. The upper part of the bladder was contracted more than the lower, producing a dome formation. An opening of a diverticulum was seen above the left ureteral orifice. About 150 cc. of a 15 per cent solution of sodium iodide was injected into the bladder and an x-ray film was taken (fig. 5). This showed a dome formation of the bladder vertex, a diverticulum on the left side, and regurgitation of the opaque material up the ureters, demonstrating dilatation of both ureters and renal pelves.

Whether primary atony of the bladder may exist without other neurologic changes is a question, but there is little doubt that some of the cases described in the

past as atony were contractures in which the obstruction had been overlooked. The fact that a fair sized instrument may be passed through a fibrosed bladder neck without much difficulty is one reason for this. Rectal palpation of the supraprostatic area with an instrument in the urethra is quite helpful in making the diagnosis.

The condition of atrophy of the prostate should not be difficult to differentiate from fibrosis. Here the prostate is small and hard and the urethra is shortened, while in fibrosis the prostate is usually normal in size and consistency, and the length of the urethra is not changed.

In differentiating the condition from adenomas of the subcervical glands, para-urethral glands and other small glandular enlargements, the diagnosis can usually be made clear by the use of the cystoscope. Also, in these hypertrophies the prostatic urethra is lengthened.

From a careful study of the histories and the clinical observations in cases of fibrosis, there is little question that many of them begin in infancy and childhood. In some, the progress is slow and insidious and the prominent symptoms may not appear until adult life. By this time serious alterations may have taken place in the upper urinary tract; therefore, it is most important to bring them to light as early as possible. This may be accomplished by a careful urologic study of infants and children who show signs and symptoms of trouble in the urinary tract, even if they are mild in character. Enuresis, pyuria, frequency, urgency and dysuria deserve the same careful investigation in infants or children as when found in the adult.

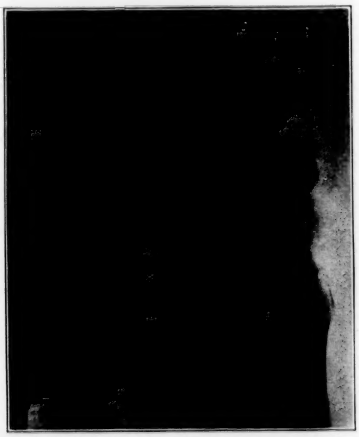


Fig. 5.—Cystogram of a cord bladder due to spina bifida — a picture similar to that of fibrosis of the bladder neck.

PROGNOSIS

The prognosis necessarily depends on the extent of the destruction in the upper urinary tract. If the renal parenchyma has been destroyed beyond the point at which relief of the obstruction will not be followed by return of fair function, the prognosis is bad. When the changes in the upper urinary tract are not far advanced, the outlook is good, provided the bladder function can be reestablished. This is not as easily accomplished in fibrosis as in other forms of prostatic obstruction, probably because of the changes in the bladder wall and the contour of the bladder neck.

TREATMENT

A carefully carried out preoperative study is as necessary, if not more so, in fibrosis as in any other form of prostatic obstruction. There is often serious impairment of the renal function, and an operative procedure carried out before the urinary tract is gradually decompressed is a dangerous procedure.

A study of the degree of retention and the impairment of the renal function will be helpful in distinguishing between the cases which can be corrected without drainage and those which require drainage. Some form of drainage by catheter is preferable to preliminary cystostomy because of the difficulty encountered later on in obtaining a good exposure of the neck of the bladder, which is quite essential to a thorough removal of the fibrotic neck.

There is no question that in the milder forms of fibrosis, especially those in which the lower segment of the internal urethral orifice is most involved, some form of transurethral or punch operation is the method of choice.

104 South Michigan Ave.

V 9
192

PERINEAL PROSTATECTOMY UNDER SACRAL ANESTHESIA

ONE HUNDRED AND TWENTY-ONE CONSECUTIVE CASES *

EDWIN DAVIS, M.D.
OMAHA

An analysis of the value of a given operative procedure must necessarily depend on a consideration of (1) the risk involved and (2) the results obtained. Refinement in diagnosis and perfection of technic are of no avail unless a fair prospect of recovery and improvement may be offered to the patient. In considering the operation of prostatectomy from this point of view, I therefore am interested primarily in the two questions:

1. What is the immediate mortality?
2. What is the percentage of satisfactory functional results?

The accompanying tables, summarizing the immediate and late results in a series of 176 consecutive cases of perineal prostatectomy under sacral anesthesia, are presented and briefly discussed with the purpose of attempting an answer to these two questions. All discussion of operative technic and other detail has been purposely omitted.

IMMEDIATE RESULTS

Those interested in urologic surgery are well aware that present-day methods, with careful attention to details of diagnosis, preparation, anesthesia and hemostasis, will result in the reduction of the mortality rate of prostatectomy to almost nil, so that this operation has come to be included in the list of relatively "benign" surgical procedures, such as appendectomy and herniotomy. This conspicuous lowering in the mortality rate, however, has occurred comparatively recently. The

* Read before the Section on Urology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

belief among members of the laity, therefore, continues to be widely prevalent that prostatectomy carries with it an appalling mortality. In fact, the opinion that not more than 50 per cent of the patients submitting to this operation may be expected to survive is not uncommonly heard, and those surviving are supposed to be permanently unfit, by reason of persistent fistulas or incontinence. Furthermore, skepticism and lack of information relative to the low risk and the gratifying results of prostatectomy are not wholly limited to the laity. These ideas persist among members of the profession, with good reason, as the result of the former high mortality rate and poor results. Hence my reason for presenting the accompanying tabulation.

In a former publication I [1] included a report of a series of 107 consecutive cases of perineal prostatectomy with one death, the latter being the twenty-second in the series. The present report, as summarized in table 1, includes an additional sixty-nine cases, making a total of 176 cases of perineal prostatectomy performed under sacral block anesthesia. In this series there were three deaths, a mortality rate of 1.7 per cent. The three deaths, due to uremia, embolus and delayed hemorrhage, respectively, occurred in patients 22, 144 and 153, making a total consecutive series of 121 without any deaths. It should be noted that the average age of these patients was 70, and that sixteen were past 80, two of these being 88. It is true that this is a low mortality rate and may be considered a good record, but it is by no means unique. Young's [2] consecutive series without a death is larger, while Hunt's [3] total series, also showing a very low mortality rate, is much larger. Cecil [4] has reported 100 cases with a mortality of 2 per cent, and Hinman,[5] a series of eighty-one with no deaths. Since other reports of large series of prostatectomies with low mortality rates have been published, it is therefore apparent that these results are attributable to careful attention to the recognized principles of prostatic surgery and are not due to good fortune alone or to mere chance. The factors which have largely contributed to the reduction in the mortality rate of prostatectomy are, preliminary drainage, careful hemostasis and sacral anesthesia. It is also likely that the growing enlightenment of the public, with the consequent tendency toward correction of the popular fallacy as to the fatality of prostatectomy, and toward the early recognition of symptoms, has given the surgeon an opportunity for intervention before the patient has become hopelessly uremic.

Proper preliminary drainage, the most important factor of all in reducing the mortality rate, has been dwelt on in many publications in recent years by competent authorities, and is too important and too well recognized to require a discussion at this time. The neglect of this phase of the subject of prostatectomy will have, as its inevitable consequence, an appalling mortality rate.

Careful hemostasis is an exceedingly important factor in maintaining a minimum mortality rate, since it may be truly stated that many deaths not directly due to hemorrhage may later result indirectly from hemorrhage by reason of infection secondary to lowered resistance. Prostatectomy may ordinarily be accomplished with very little bleeding, and in some instances the operation may be made almost bloodless as the result of (1) the opportunity for deliberateness in controlling individual bleeding points by suture and ligature, through the time afforded by the use of sacral anesthesia, and (2) the use of an inflated hemostatic bag for the purpose of controlling hemorrhage during the first few postoperative hours. In all the cases here reported, a perineal prostatic bag, which I described in a previous publication,[6] was employed.

The method of anesthesia used throughout in this series has been the so-called sacral block, including injection through the sacral hiatus (caudal anesthesia) as well as through the first, second and third sacral foramina on either side. The technic of this injection has been described by Scholl,[7] Meeker,[8] and myself,[9] and need not be discussed here in detail. Each of these patients received a preliminary hypodermic injection of morphine, ¼ grain (16 mg.), followed by a caudal injection through the sacral hiatus of approximately 40 cc. of 1 per cent procaine hydrochloride, and supplemented by the injection of approximately 10, 8 and 5 cc. of the same solution into the first, second and third sacral foramina on either side. The simplicity and ease of administration of sacral anesthesia, the complete and almost uniform efficiency of this method, and the lack of complications and sequelae are such that the problem of anesthesia for prostatectomy in the old and debilitated may be considered satisfactorily solved. The risk is negligible, as there has not been a death from anesthesia in the entire series, or a reaction of consequence. Although slight reactions, characterized by a moderate drop in blood pressure and by more or less pallor and perspiration and, more rarely, by nausea and mild delirium are not uncommon, there has not been a single instance in which the reaction was in any measure alarming. The most interesting phase of the subject of sacral anesthesia, however, and the most baffling, has been the certain recognized percentage of inexplicable failure to obtain satisfactory results. My own experience has been such as to justify the conclusion that this variation in efficiency may be satisfactorily explained merely on a technical basis, as may be demonstrated by a comparison of the figures here presented with those published in a former paper in 1924. In this paper I [10] reported a series of thirty consecutive cases of perineal prostatectomy performed under sacral block anesthesia. In this series there were three complete failures, as far as the effectiveness of the anesthesia was concerned, and

TABLE 1.—*Perineal Prostatectomy Under Sacral Anesthesia*

Immediate Results	
Total consecutive cases	176
Average age	70
Above 80	16
Deaths	3
Total consecutive cases with no deaths	121
Sacral anesthesia (number of failures in last 50 cases)	0
Rectal injury	1
Postoperative "shock"	0
Delayed hemorrhage (several days)	5
Epididymitis	23

1. Davis, Edwin: Perineal Prostatectomy Under Sacral Anesthesia: One Hundred and Seven Consecutive Cases with One Death, J. A. M. A. **88:** 784 (March 12) 1927.
2. Young, H. H.: Prostatectomy: Preoperative, Operative and Postoperative Treatment, Surg. Gynec. Obst. **36:** 589 (May) 1923.
3. Hunt, V. C.: Treatment of the Surgical Patient Handicapped by Urinary Obstruction, Surg. Gynec. Obst. **42:** 187 (Feb.) 1926.
4. Cecil, A. B.: Perineal Prostatectomy: A Detailed Study of One Hundred Consecutive Cases, J. Urol. **6:** 399 (Dec.) 1921.
5. Hinman, Frank: Structural Results of Prostatectomy with Reference to Methods of Enucleation, Arch. Surg. **4:** 154 (Jan.) 1922.
6. Davis, Edwin: Distensible Bag for Hemostasis and Drainage Following Perineal Prostatectomy, J. Urol. **18:** 201 (Aug.) 1927.
7. Scholl, A. J.: Sacral Anesthesia in Urology, J. Urol. **6:** 149 (Aug.) 1921.
8. Meeker, W. R.: Regional Anesthesia in Surgery of the Prostate Gland and Bladder, Journal-Lancet **44:** 1 (Jan. 1) 1924.
9. Davis, Edwin: Perineal Prostatectomy Under Sacral Anesthesia, Nebraska M. J. **10:** 8 (Jan.) 1925.
10. Davis, Edwin: Perineal Prostatectomy, with Particular Reference to Sacral Anesthesia and to Hemostasis, J. A. M. A. **83:** 1988 (Dec. 20) 1924.

four patients required additional gas inhalation anesthesia during the final stages of enucleation. Thus, seven out of thirty, or 23 per cent, were unsatisfactory for reasons not understood. In the present series there has not been a single case requiring auxiliary gas inhalation anesthesia during the last fifty-one consecutive cases, and out of the last hundred cases gas has been necessary during the final stages of enucleation in only three instances. Thus, with practice, the percentage of failure has been reduced from 23 to 3. Since the same drug in the same concentration was employed in all instances, and since there has not been any deliberate modification in the technic of injection, the only logical conclusion is that the anesthetist has learned to place the needles more accurately in the foramina. The percentage of failures may thus be explained adequately on a technical basis, without recourse to the various more or less complicated anatomic and physiologic theories that have been advanced. Finally, it may be stated that sacral block anesthesia, properly administered, is dependable.

TABLE 2.—*Perineal Prostatectomy Under Sacral Anesthesia*

		Late Results
Total consecutive patients questioned		100
Time elapsed since operation		3 to 24 months
Patient's own opinion	Well	81
	Improved	15
	Unimproved	4
Incontinence	Complete	0
	Inconvenient	2
	Slight	2
Nycturia	Not at all or once	43
	Once or twice	21
	Two or three times	25
	Four or more	11
Urinary fistula	Complete	1
	Slight	4
Recto-urethral fistula	Immediate	0
	Late	1
Retention		1
Subsequent deaths		8

Thus, careful attention to the factors of preliminary preparation, sacral anesthesia and hemostasis has resulted in reducing the immediate mortality of prostatectomy to almost nil. In fact, it may be said without exaggeration that the problem of the immediate mortality of prostatectomy may be considered to be satisfactorily solved, with one reservation only. I refer to delayed hemorrhage. As may be noted in table 1, this complication has occurred in five cases out of 176. Sudden, profuse hemorrhage, occurring as late as the tenth postoperative day, and interrupting an otherwise smooth convalescence, is a menace which cannot be foreseen or prevented. This occurs probably as the result of infection and slough, and constitutes a grave emergency, in that its seriousness may not be recognized until the patient has gone into collapse. Hemorrhage of this character is a complication which should not be temporized with and which calls for immediate active measures directed toward mechanical control. In three of the five cases, a suprapubic incision was made under local anesthesia in order to permit evacuation of clots and the reintroduction of a hemostatic bag or pack. Hemorrhage of this character was indirectly responsible for one of the deaths in that, although measures directed toward control were successful, the patient's resistance was lowered by loss of blood to such an extent that gangrenous infection of the incision set in, resulting in general sepsis and death ten days later.

LATE RESULTS

Interest in functional results should be as great as, if not greater than, the interest in immediate mortality. The figures in table 2 are based on information obtained from questionnaire blanks returned by the last 100 consecutive patients with whom it was possible to communicate. In order to avoid complications and misunderstandings, only the following simple, direct questions were asked:

1. Is the wound entirely healed?
2. Can you control the urine?
3. Do you pass urine too often?
4. How many times do you get up at night to urinate?
5. Does the urine pass without difficulty?
6. As far as the operation is concerned, do you consider yourself (1) well, (2) improved or (3) unimproved?

The last question was considered to be the most important, since it was for the purpose of obtaining the patient's own unqualified opinion as to the result of the operation. It should be noted that perfection cannot be attained, because of the run-down and debilitated condition of many of these patients with irreparable injury to the bladder and kidney. The replies were tabulated as received, regardless of the known fact that a percentage of patients were dissatisfied by reason of conditions wholly unrelated to the prostatectomy.

As shown in table 2, eighty-one of these patients unequivocally stated that they considered themselves well, while there were fifteen improved and four unimproved. An analysis of the data indicates that the majority of those who reported themselves as "improved" rather than "well" did so on account of varying degrees of frequency of urination. In this connection, it is to be noted that in a series such as this there would necessarily be a fair percentage of cases of advanced pyelonephritis and other chronic infections such as to prevent all possibility of the return of the urinary tract to normal.

The question of incontinence following prostatectomy is a subject deserving careful consideration. Although there was no case of complete incontinence, there were two patients with a sufficient degree of incontinence to be the cause of considerable inconvenience. While each of these patients has intervals of complete dryness and has the ability to start and stop the urinary stream at will several times while voiding, there is a weakness of the external sphincter, as indicated by leakage, at intervals, of small amounts on any undue exertion, such as coughing, sneezing or suddenly rising. Since these patients have intervals of complete dryness, and since they have the ability voluntarily to start and stop the urinary stream, it is evident that a sphincteric structure exists, and it is therefore logical to consider the possibility of individual anatomic variation in the musculature or innervation of the external sphincter. I have under observation at the present time a patient with this identical type of sphincter weakness following suprapubic prostatectomy. In this connection, I do not intend to minimize the possibility of external sphincter injury by the perineal operation. It is to be stated frankly that this is a very real danger, particularly in those cases in which the internal sphincter has been rendered func-

V 9
192

tionless by the gland itself. In addition to these two patients, there were two others with slight degrees of incontinence. It is likely that in at least some of these four patients the unsatisfactory control resulted from technical error at operation.

The question of urinary frequency after prostatectomy is likewise considered in table 2. As may be noted, approximately 60 per cent of these patients stated that they did not find it necessary to pass urine during the night more than once or twice. Others, although having a greater degree of urinary frequency, and being inconvenienced to some extent in this respect, were nevertheless willing to class themselves voluntarily as "well" by reason of the gratification of having been relieved of the obstructive and uremic symptoms. In spite of the large proportion (80 per cent) of satisfied patients, the table shows a relatively small proportion (43 per cent) who reported nycturia only once or not at all.

The one case of persistent complete urinary fistula resulted from the formation of a fibrous stricture or septum at the apex of the prostate. Since this condition has subsequently been restored to normal by an internal urethrotomy, the fistula no longer exists. The four patients with slight perineal urinary leakage each complained of the escape of a few drops of urine at intervals through the perineum at the time of voiding. In each case, this condition persisted over a period of several months. Two of these patients have been subsequently cured by a secondary minor plastic operation. It has been impossible to follow the other two.

There has been no case of immediate postoperative urethrorectal fistula. One patient, in a very debilitated and weakened condition, had a long, protracted convalescence associated with perineal pain and an elevated temperature over a period of three or four weeks. Five weeks after operation, he developed a leakage of urine into the rectum, the fistula having occurred presumably as a result of a periprostatic abscess.

In the one case of retention following prostatectomy, the condition was later found to be due to an unsuspected vesical carcinoma occurring in the region of the prostatic orifice.

Since satisfactory functional results are in no small measure dependent on the accuracy of the preoperative diagnosis, it is well to emphasize the importance of this item. Symptoms not due to prostatic obstruction are not likely to be relieved by prostatectomy. Urinary difficulty, in a man past 60, does not therefore necessarily constitute an indication for prostatectomy; and to remove the prostate of such a patient, whose symptoms are primarily due to bladder tumor, perhaps, or to diverticulum, urethral stricture, spinal lesion, or a cystitis secondary to renal infection, is to guarantee him a continuation of symptoms. Thus, ill advised prostatectomy may have its apparent effect on the percentage of the good functional results and has doubtless been a factor in delaying the general recognition of the value of this operation. More attention to accuracy in diagnosis will therefore have as its result a decreased percentage of poor functional results, and an increase in confidence shown by the public, and by others of the profession.

CONCLUSION

1. Present-day methods (preliminary preparation, sacral anesthesia, and hemostasis) are such that prostatectomy has come to be a surprisingly benign procedure, with a mortality rate which may be reduced to almost nil.

2. If proper attention has been given to these details, the chief hazard of prostatectomy is that of sudden, profuse and exsanguinating secondary hemorrhage occurring as late as the tenth day. This hemorrhage should be treated as an emergency measure and should be checked by mechanical means, even though this may necessitate a secondary operation. Under these circumstances, it is a grave error to wait and hope that the hemorrhage will cease.

3. As far as the late functional results are concerned, and on the assumption that there has been proper diagnosis, preparation and operative technic, it is conservative to expect 80 per cent of satisfied patients following prostatectomy, and 15 per cent of fairly satisfied patients. Good functional results are dependent on accuracy in preoperative diagnosis, as well as on proper operative technic.

1436 Medical Arts Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HERBST AND DAVIS

DR. BRANSFORD LEWIS, St. Louis: The general profession is not recognizing the importance of fibrosis of the bladder neck. I have seen many cases in which this condition has gone on from infancy through adolescence to middle life, the patient complaining during his whole life, making efforts at urination and accomplishing little, being utterly miserable, objectively and subjectively, and having a complete disorganization of the urinary tract up to the kidneys. And I have found pyonephrosis and destruction that is astonishing and makes one wonder that these patients could live so long. This condition should be recognized much earlier and more frequently than it is. I was much interested in Dr. Davis' method of sacral anesthesia and his success. We used to use it more than we do now, and we had about 85 per cent success and 15 per cent failures. Dr. Davis has had more success than we have had, which he explains by his larger practice. In regard to perineal prostatectomy, I did that operation for several years to the exclusion of the suprapubic operation, but for the last fifteen years I have used the suprapubic method in preference. I get better results with it than with the perineal. Dr. Davis has had splendid results so far as his immediate mortality is concerned; 1.75 per cent is far better than I have ever had. In his late results there seems to be a reason for criticism in that thirty-six out of the 100 patients operated on still remain uncontrolled, and six cases of fistula resulted, which I think should not be present in any of these prostatectomies.

DR. WIRT B. DAKIN, Los Angeles: Dr. Davis' statistics could be improved somewhat if he had had the opportunity of talking to these patients personally. He has been very lenient in drawing his conclusions from the questionnaire sent them. He spoke of the incontinence or partial incontinence. I have found that many of these patients following operation will give such a report as they gave him, when the condition followed an acute cold, influenza, undue fatigue from overexercise, worry over financial affairs, or something of that nature.

DR. ARTHUR L. CHUTE, Boston: Dr. Herbst has touched on a very important subject, not only one on which the general practitioner has little knowledge but also one which we often overlook. It is not infrequent in my experience to see a patient who has bladder stones or a postoperative bladder fistula that does not close, or in whom stones reform without evident cause. There is often no evidence of prostatic enlargement by rectum but when these patients are examined cystoscopically we find a little raising or thickening of the bladder outlet with signs of overwork on the part of the bladder, as evidenced by hypertrophy of the inner muscle layer. In almost all these cases, if we do a perineal section and take away a little of the fibrous tissue about the bladder outlet, or even open the outlet wide, we shall give relief. I assume that many of these cases begin with this early fibrosis, though I have not recognized them until they have come to operation considerably later in life. I am glad to see that Dr. Davis is on his way toward the

ultimate goal, spinal anesthesia. I wish to assure him that when he arrives, many of these little troubles will be cleared up.

DR. FREDERIC E. B. FOLEY, St. Paul: Dr. Davis is to be complimented not only for his interesting presentation of this subject but also for his remarkable mortality figure and excellent functional results. It would be useless to attempt a comparative appraisal of perineal and suprapubic prostatectomy based on the prejudice of proponents of the two operations. Although Dr. Davis demonstrates that poor functional results are not necessary with the perineal operation, these nevertheless explain why a vast majority of surgeons prefer the suprapubic approach. If technical faults on the part of the operator are left out of consideration the perineal operation regularly gives a functional result quite as perfect as it is possible to obtain by the suprapubic approach. A poor functional result means only one thing—an incorrect dissection. The operation is a technically difficult procedure. There is no latitude between the proper dissection which will give a perfect functional result and an improper one resulting in incontinence or injury to the rectum. The technical difficulty is almost entirely the difficulty of properly dividing the recto-urethralis muscle. During the past year and a half, at the Ancker Hospital in St. Paul, we have employed the perineal operation in all suitable cases. A technical trick has been devised which has proved of great value. This consists of transilluminating the rectum to serve as a guide for division of the recto-urethralis muscle. Hanging from the outer surface of the lower sterile drape is a long, narrow, tail-like pocket so placed that its opening on the under surface of the drape is opposite the anus. A curved "Surgi-Lite" is put handle downward into this pocket. The light may be freely manipulated in the tail-like pocket, though its insertion or withdrawal from the rectum is concealed beneath the sterile drape. With the light inserted the anterior rectal wall becomes brilliantly transilluminated. The exact position of the rectal lumen and extent of rectal wall are at once apparent. The recto-urethralis muscle becomes clearly defined as a dark unilluminated ridge rising from the rectal wall in the midline extending forward to the urethra. With this aid and without fear of inadvertent incision of the rectum, it becomes possible to divide the muscle exactly at its junction with the rectum, thus giving the urethra and its sphincter the widest berth possible. Though only a technical detail the procedure has facilitated and rendered secure a dissection formerly found hazardous and difficult.

DR. GEORGE R. LIVERMORE, Memphis, Tenn.: Dr. McCarthy has presented us with an instrument for the treatment of these conditions that will not be universally adopted. The punch operation, devised by Dr. Young, and his instrument, improved by Dr. Caulk, has been very good, but it is at best a blind operation as we always have to remove the light after the instrument is in place and then burn out the bar, or obstruction. Dr. Bumpus worried me quite a little in telling of a death following a punch operation, as a result of a portion of the trigon having been caught in the instrument. Since Dr. McCarthy has brought out his punch instrument with which we can see the blade advance right through the obstruction, it means that we have the ideal instrument. Dr. Davis' results in perineal prostatectomy are wonderful. We use the suprapubic method and find the results better, but it is a question of what a man likes best as to what he should do. I feel that I can do the suprapubic operation better, but the results of Dr. Davis are so good I am tempted to try his method.

DR. JOSEPH S. EISENSTAEDT, Chicago: The case of fibrosis of the bladder neck observed in a small boy described by Dr. Herbst particularly interested me. It was my privilege to see such a case a year ago, and to me the most impressive thing was to feel a solid mass above the prostate, which was undoubtedly a hypertrophic bladder wall, in so young a child. We incised the bladder and took out a fair sized piece from the lower median portion of the vesical neck. I did not understand what Dr. Herbst recommended in the care of these young children. The technic described by one of the gentlemen is the approach through the perineum. I should like to hear what would be the method of choice in treating fibrosis of the vesical neck when diagnosed in a very young child.

DR. JOSEPH F. MCCARTHY, New York: Dr. Livermore has presented the operation that should be used. Here, again, I wish to emphasize the value of the sight method. If I have succeeded in better visualizing the brilliant conception of Dr. Young, I shall be very happy about it. Even today we do not realize the real brilliancy of this conception. If my instrument will serve further to popularize his operation, I shall regard it as a real contribution to urologic surgery. None of us have had results comparable to those of Dr. Davis. I should like to ask the time of convalescence and closure. This is important. We performed a series of perineal prostatectomies two years ago, at which time it appeared to us that these patients had a little longer convalescence, and a little more discomfort than from the suprapubic route. As to the perineal and suprapubic methods, I think that unless a man has been educated in Dr. Young's school he is more likely to get into trouble with this technic than he would be if he introduced his finger into the rectum until the separation reached the bifurcation of the levator ani fibers. Up to that point, the anterior rectal wall goes up hill and from then on down hill. From this point on, digital separation is a safe procedure. From the standpoint of asepsis, the finger should be kept in the rectum until that point is reached. Then it should be withdrawn, and new gloves put on, as it is no longer necessary to reintroduce the finger in the rectum.

DR. CYRUS E. BURFORD, St. Louis: I have not seen such extensive fibrosis in so young a child, but I have seen contracture at the vesical neck in young children which I feel sure is a fibrosis but not so extensive as in the case of Dr. Herbst mentioned. I am sure that the condition is frequently overlooked. One case occurred in the child of a physician, who had been examined by an internist, a very careful man, and a diagnosis of abdominal tumor was made. The distended bladder confined itself to the right side of the abdomen and the boy was able to void urine. Analysis showed a normal urine, and on account of this finding distention of the bladder was not suspected. The condition had been going on for several months. We were at first able to introduce only a filiform through the vesical neck. This was followed later by larger sounds, and later still we did a meatotomy; eventually we used a baby cystoscope and found a fusiform urachus extending to the umbilicus which was interlaced with muscle fibers. The tone of this bladder was not lost, and after complete divulsion over a period of six weeks the patient was able to empty it completely. I have seen him since then on several occasions, and he is now about 16 years old, having been treated when he was 9. He can now empty the bladder, and with all the manipulating we did not cause infection of the urine. I have had three cases in small babies, one less than 1 month old and the others 3 and 6 months of age, with large distended bladders and contraction of the vesical neck. In two of these cases there was infection. In these cases we were able with extensive divulsion to secure complete emptying of the bladder. I think that in the majority of these cases in small children divulsion will prove sufficient.

DR. B. A. THOMAS, Philadelphia: In the Scientific Exhibit we have a kidney and ureter from a 2 year old child with the same conditions that Dr. Herbst described. The specimen consists of a large hydronephrotic kidney and hydro-ureter about 3 cm. in diameter, containing a markedly infected urine, and a portion of the badly infected bladder and regurgitant ureteral orifice, all of which illustrate typically the extensive pathologic changes that may ensue in these cases. In this case following the nephro-ureterectomy, it was necessary to resect the bladder and the insufficient ureteral orifice, and also to excise a box or obstruction at the vesical orifice, which was somewhat constricted. Dr. Herbst's slides showed a number of cases in which there was a concentric hypertrophy of the bladder. This I have commonly observed when the obstruction is slight and progresses very slowly—the irritative rather than the obstructive type of prostatism—whereas in typical classic hypertrophy of the prostate in which the obstruction is more extensive and rapidly progressive, eccentric hypertrophy soon becomes the outstanding pathologic condition of the bladder. With respect to the paper of Dr. Davis, I am sure that the mortality rate that he has given will not be improved for a long time. I feel, however, that we should not allow him to convey the idea that in all cases of prostatic hypertrophy operation should be by the perineal route. I feel very strongly that Dr. Davis and others who practice this method exclusively will find that if

V 9
192

more attention is paid to the route and that made dependent on the pathologic changes present, even he or they will be able to lower their present low mortality rates, not to mention the improvement that will attend morbidity results. If more discrimination in this respect is exercised in the selection of the route, whether it be perineal, suprapubic or transurethral, improved results will accrue to the operation of prostatectomy. It seems to me that there is something decidedly wrong with urology when some of the leading exponents contend that all prostatectomies should be done suprapubically, while others insist that all should be done perineally. Obviously, they cannot both be right, and it is high time that surgeons should qualify themselves and be prepared impartially to perform whatever operation or operative procedure may be indicated by the conditions present in the given case, instead of subjecting the patient to whatever operation or route they may be addicted to by reason of their training or reputation.

DR. R. ARTHUR HOOE, Washington, D. C.: If I felt competent to employ this method as successfully as Dr. Davis does, doubtless all of my cases of lateral lobe obstruction would be dealt with by this route. In such a large series of cases, preliminary decompression must have been necessary in a great many of them, and I should like to ask Dr. Davis how he managed this problem, whether by indwelling catheter or by systematic catheterization. It has been our experience that in a number of these cases in which systematic catheterization was attempted, edema of the posterior urethra would occur and make the passage of a catheter impossible. Many, as we know, cannot tolerate the indwelling catheter. I wish that Dr. Davis would also tell us the method he employed for the control of hemorrhage and its success as compared to our methods by the suprapubic route. For our patients, the suprapubic route seems definitely safer, and we do nearly all of these operations by the two-stage method.

DR. CLINTON K. SMITH, Kansas City, Mo.: I was particularly pleased that Dr. Herbst carried his study of the problem to the children. I believe that the more we carry the study of these problems back to childhood, the more clear will become some of these less understood problems in urology. There is another type of case which I should like to mention, rather in contrast to that which Dr. Herbst described. A boy, aged 10, entered the hospital complaining of extreme bladder distress and frequency of urination which had gradually increased in severity over a period of several years. He was very much undernourished. It could be seen that the bladder was very much distended and that he was really having a paradoxic incontinence. On cystoscopy it could be seen that the bladder had the appearance of a tabetic bladder in the adult. On cystography the fluid found its way to the right kidney producing a ureteropyelogram. This boy had a 4 plus Wassermann reaction of the spinal fluid. We concluded that we were dealing with cord syphilis as there was no obstruction whatever in the urethra. I bring this up to show that sometimes we are dealing with spinal cord syphilis in these cases.

DR. ALBERT E. GOLDSTEIN, Baltimore: For several years back I have done the perineal operation, after doing the suprapubic for some time, and I have had a relative experience with both methods. Since the adoption of caudal anesthesia I have been able to handle the perineal method much better than the suprapubic. Relative to anesthesia, I make the injections into the sacral hiatus. I wish to ask Dr. Davis whether he means just this sacral hiatus when he mentions sacral anesthesia or whether he injects the foramina in addition. With relation to fistulas in the perineal prostatectomy, I have not had any, but if one will take the time to review the literature on prostatectomy, he will find that fistulas also occur in suprapubic prostatectomy. Quite a number of such instances have been recorded by Thompson Walker in the last few years. One thing in the paper of Dr. Davis that I did not like was the large number of cases of epididymitis—twenty-three in his series. Since we have been removing a small piece, at least 1 cm., from each side of the vas we have prevented this complication, and every one in Baltimore is doing this to prevent epididymitis. There have not been any cases since this plan was adopted.

DR. ROBERT H. HERBST, Chicago: In the few infants and young children that I have seen, either clinically or at autopsy, there was a massive hypertrophy of the bladder neck which included the region of the internal urethral orifice and the adjacent bladder wall. The fibrosis seen in adults is not present in children, and we believe that the fibrosis is a later change, probably due to infection and trauma to the hypertrophied bladder neck. A microscopic examination of the thickened infant bladder neck shows marked hypertrophy of the musculature but absence of fibrous tissue. Replying to the question about treatment: If the fibrosis is limited to the lower lip of the internal urethral orifice, which I believe is rather rare, one of the punch operations is indicated. This, I believe, could be well carried out by the new instrument of McCarthy's which gives one a good view while the bar is being removed. If the entire bladder neck is involved in the fibrosis, complete resection through the opened bladder, giving a good exposure, is indicated.

DR. EDWIN DAVIS, Omaha: Dr. McCarthy asked about the closure in the cases of fistula. The average time in 100 cases was 20.6 days. Dr. McCarthy is right in saying that there are two hazards, the rectum and the external sphincter. Dr. Thomas is also right. It would be preposterous for any individual to state that all these patients should be operated on by one or the other route. We gain nothing by controversy. I think that it is safe to say that the majority of patients may be operated on equally well via either route, provided the operator understands his business, and in the minority one or the other operation is indicated. Dr. Hooe asked about preliminary drainage. In perhaps 75 per cent of the cases we have used the indwelling catheter. When this was intolerable, we have not hesitated to use suprapubic drainage. The bag I have shown before. We have not used caudal anesthesia, but the complete sacral block. I think it was Dr. Keyes who said some years ago that more suprapubic patients die, and more perineal patients wish they were dead. I leave it to you to judge which is right.

FOOD ALLERGY

ITS MANIFESTATIONS, DIAGNOSIS AND TREATMENT *

ALBERT H. ROWE, M.D.
OAKLAND, CALIF.

Food allergy as a frequent cause of symptoms in adults as in children should receive greater recognition. It has been emphasized by Schloss [1] as a frequent cause of disturbances in childhood. In adults, however, outside of the articles of Duke,[2] food allergy has received little consideration. It is felt that with the method of analysis of the patient's history, the interpretation of the skin tests and the use of "elimination diets" advocated and outlined in this paper, many of the manifestations of food allergy described here will be discovered, the causative foods determined, and the symptoms relieved.

GENERAL CONSIDERATIONS

The following is a summary of the points to be emphasized in this article:

1. Food sensitization is more common in adult life as well as in childhood than is generally appreciated.

2. A positive history of allergy in the patient's family or personal history should denote the possibility that allergy is causing the symptoms under suspicion.

3. It is usually difficult for the patient to determine which foods are causing allergic disturbances. This is especially true of the common foods, such as wheat,

* Because of lack of space, this article is abbreviated in THE JOURNAL. It will appear in its entirety in the author's reprints.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

1. Schloss, O. M.: Allergy in Infants and Children, Am. J. Dis. Child. **19:** 433 (June) 1920; Allergy to Common Foods, Tr. Am. Pediat. Soc. **27:** 62, 1915.

2. Duke, W. W.: Asthma, Hay Fever, Urticaria and Allied Manifestations of Allergy, St. Louis, C. V. Mosby Company, 1926; Food Allergy as a Cause of Abdominal Pain, Arch. Int. Med. **28:** 151 (Aug.) 1921; Food Allergy as a Cause of Illness, J. A. M. A. **81:** 886 (Sept. 15) 1923.

milk and eggs, to which patients are most frequently sensitive.

4. Skin reactions especially by the cutaneous scratch method are frequently negative in pollen,[3] animal emanation and especially, in my opinion,[4] in active food allergy.

5. Determination of sensitization of foods therefore must depend on dietary trial. Such dietary trial is even necessary when skin reaction to foods are positive since such reactions, as stated by Alexander,[5] may indicate a localized allergy in the skin and not in the affected tissues.

6. The diagnosis and treatment of allergy and especially of food allergy are not laboratory procedures but demand a most careful history, supervision of the diet, and a control of concomitant types of allergy. They also demand thorough diagnostic study with laboratory and roentgen-ray investigations to determine all existing pathologic conditions.

For comparative and statistical purposes, a series of 175 food-sensitive patients have been grouped according to their chief allergic manifestation.

The ages of patients in this series are given in table 1. The average age was 31 years, though the series contained patients of all ages. Family history, as shown in table 2, was positive for allergy in 68 per cent of the cases in comparison with 56 per cent in a former series of asthmatic patients.[7] Females were in slight excess. A single manifestation of food allergy was present in 51 per cent of the cases. In the remaining patients one or more associated allergic conditions not necessarily due to food were present. Food dislikes and especially known disagreements were complained of in 57 per cent of the patients.

TABLE 1.—*Ages of One Hundred Seventy-Five Food Sensitive Patients*

Major Diagnosis	Age							Total Patients
	Aver.	0-5	5-10	10-20	20-30	30-50	50-80	
Abdominal allergy	37	0	2	4	6	29	9	50
Urticaria	14	8	4	2	3	2	1	20
Angioneurotic edema	38	0	0	2	2	7	3	14
Eczema	23	5	1	2	2	3	3	16
Migraine	37	0	1	2	5	13	9	30
Asthma	27	8	6	8	5	14	4	45
Total	31	21	14	20	23	68	29	175

ABDOMINAL ALLERGY

Abdominal allergy manifesting itself in abdominal pain, colic, gastric and intestinal distress, distention, nausea, vomiting, constipation or diarrhea is of frequent occurrence.

Laroche[8] has described many of the results of abdominal allergy in his monograph on the subject. Duke[2] especially has emphasized food allergy as a cause of abdominal pain and other gastro-intestinal symptoms and has pointed out the danger of unnecessary surgery. Andresen[9] has discussed the general digestive symptoms due to food sensitization. I[4] have also described, in recent publications, the gastro-intestinal symptoms of food allergy. The abdominal symptoms and danger of unnecessary surgery were emphasized by Osler[10] in an article on the "Erythema Group of Skin Diseases," the probable cause of which was food allergy.

In this series are included fifty cases, presenting various symptoms due to abdominal food allergy. Other allergic manifestations were present in 70 per cent of the cases. Food disagreements were especially frequent in 80 per cent. Generalized or definitely localized abdominal pain or distress, especially in the lower abdomen, discomfort over the liver region suggestive of biliary tract disease, nausea, vomiting, gastric or intestinal distention and uneasiness, pyrosis, mucous colitis,[11] proctitis[12] and sigmoiditis, frequent constipation and diarrhea are manifestations of food allergy complained of by these patients. Such symptoms are probably due to muscular spasm or mucosal congestion and edema from the allergic reaction. Pain over the liver region due to sensitization to definite foods has occurred in twelve different cases and may be the result of a local edema of sensitized liver cells. The hepatic reaction occurring in the anaphylactic dog[13] and the outstanding demonstration of Walzer[14] of whole food proteins in the normal blood stream lends credence to such an hepatic allergy. Lintz[15] has commented on the occurrence of pain simulating that of appendicitis and on the frequency of gastro-intestinal bleeding due to food sensitization. Severe abdominal pain even with symptoms of obstruction may lead to unnecessary surgery and is probably due to smooth muscle spasm or to localized angioneurotic edema.[16] Such cases have been reported by Harrington[17] and Bogart.[18] Briggs[19]

TABLE 2.—*Incidence of Family History of Allergy and Associated Allergic Manifestations in One Hundred Seventy-Five Food Sensitive Patients*

Major Diagnosis	Number of Cases	Male	Female	Positive Family History	Associated Allergic Conditions				
					Asthma	Hay-Fever	Cutaneous Allergy	Migraine	Abdominal Allergy
Abdominal allergy	50	13	37	37	8	14	17	12	50
Urticaria	20	7	13	11	3	2	20	1	2
Angioneurotic edema	14	3	11	6	2	2	14	5	4
Eczema	16	8	8	11	3	1	16	0	5
Migraine	30	11	19	26	3	2	11	30	11
Asthma	45	19	26	28	45	4	7	0	3
Total	175	61	114	119	64	25	85	48	75
		55%	65%	68%	37%	14%	49%	27%	43%

3. Lamson, R. W., and Miller, Hyman: Pollen Allergy: Genesis of the Skin Hypersensitiveness in Man, Arch. Int. Med. **40:** 618 (Nov.) 1927; Kern, R. A.: The Interpretation of Skin Tests, Atlantic M. J. **30:** 290 (Feb.) 1927.

4. Rowe, A. H.: Allergy in the Etiology of Disease, J. Lab. & Clin. Med. **13:** 31 (Oct.) 1927; Food Allergy: A Common Cause of Abdominal Symptoms and Headache, Food Facts **3:** 7, 1927; Abdominal Food Allergy: Its Treatment with Elimination Diets, California & West. Med., November, 1928.

5. Alexander, H. L.: Localized Allergy, M. Clin. North America **11:** 399 (Sept.) 1927.

7. Rowe, A. H.: The Treatment of Bronchial Asthma, J. A. M. A. **84:** 1902 (June 20) 1925; Bronchial Asthma in Children and in Young Adults, Am. J. Dis. Child. **31:** 51 (Jan.) 1926.

8. Laroche, Richet; and Saint Girons; L'anaphylaxie alimentaire, Paris, 1919.

9. Andresen, A. F. R.: Gastro-Intestinal Manifestations of Food Allergy, M. J. & Rec. **122:** 271 (Sept. 2) 1925.

10. Osler, William: On the Surgical Importance of the Visceral Crises in the Erythema Group of Skin Diseases, Am. J. M. Sc. **127:** 751, 1904.

11. Hollander, E.: Mucous Colitis Due to Food Allergy, Am. J. M. Sc. **174:** 493 (Oct.) 1927.

12. Wynn, J.: Senile Pruritus Due to Hypersensitiveness, J. Lab. & Clin. Med. **13:** 16 (Oct.) 1927.

13. Auer, John: The Functional Analysis of Anaphylaxis, George Blumer Edition of Billings-Forchheimer's Therapeusis of Internal Diseases **2:** 80-160, 1925.

14. Walzer, M.: Studies in Absorption of Undigested Proteins in Human Beings, J. Immunol. **14:** 143 (Sept.) 1927.

15. Lintz, W.: Appendicitis in Three Hundred Cases of Asthma and Other Forms of Allergy, New York State J. Med. **25:** 368 (March 6) 1925; Gastro-Intestinal Bleeding in Asthma and Other Forms of Allergy, Boston M. & S. J. **190:** 930 (June 5) 1924.

16. Morris, R. S.: Angioneurotic Edema: Report of Two Cases with the Histology of a Portion of the Gastric Mucosa Obtained by the Stomach Tube, Am. J. M. Sc. **128:** 1812, 1904.

17. Harrington, F. B.: Angioneurotic Edema: Report of a Case Operated on During an Abdominal Crisis, Boston M. & S. J. **152:** 362, 1905.

18. Bogart, A. H.: The Surgical Significance of Intestinal Angioneurotic Edema, Ann. Surg. **61:** 324, 1915.

19. Briggs, W. A.: Fulminating Pelvic-Abdominal Edema Simulating Rupture Tubal Pregnancy, J. A. M. A. **50:** 528, 1908.

also reported a patient who had pain found at operation to be due to angioneurotic edema of the fallopian tube.

These sufferers from food allergy in addition often have itching, swelling and burning of the mucous membranes of the mouth, lips or throat and have a predilection to canker sores and white patches on the lips and in the oral cavity and even in the nose. I share Fenwick's [20] opinion that anorexia and many distastes of children for food are often due to allergy and may be protective in nature. Fenwick also names "mysterious bouts of fever," drowsiness, lack of concentration and mental confusion as symptoms of the same condition.

The diagnosis of abdominal allergy in these cases was made only after thorough diagnostic studies. Roentgen-ray examinations in 70 per cent of the cases showed associated pathologic conditions in only a few instances. Stomach analyses were made in 24 per cent of the cases. Achylia was absent, though a delayed appearance of acid was the rule. Administration of dilute hydrochloric acid and of pancreatin tablets to thirty-eight patients according to the suggestion of Sansum [21] did not give marked relief.

Brief records illustrative of symptoms and good results in therapy follow:

CASE 1.—A man, aged 56, had had colicky pain in the left middle portion of the abdomen for nearly fifty years. For one year, this pain had been severe and continuous. Vomiting, at times fecal in type, had suggested surgical exploration. The family history for allergy and skin reactions were negative. Wheat, sweet potatoes, beans and spinach were found responsible for the pain and vomiting, these symptoms being reproduced by the addition of these foods to the diet.

CASE 2.—A boy, aged 12, had had cramping one to two hours after meals for several years. Bilious attacks recurred every few weeks. He had frequent canker sores and itching eyes. Wheat and eggs nauseated him and gave positive skin reactions. Complete removal of them from the diet has given relief.

CASE 3.—A woman, aged 57, had had "a sour stomach," gastric distress and nervousness for five years. The family and personal history of allergy and skin tests were negative. Milk, for which she did not have a distaste, was found by the use of "elimination diets" to be the cause of her symptoms. The taking of a minute amount of milk reproduces the symptoms.

URTICARIA

A group of twenty cases of urticaria due to food allergy forms a basis for discussion. Urticaria occurred as the sole allergic manifestation in 75 per cent of these patients. Patients were conscious of disagreements to the foods in only a few instances. Food reactions were particularly disappointing in this group, an entire absence of any reactions occurring in 33 per cent of the cases. The classic study of Schloss,[22] which showed the absence of skin reactions to egg throughout the month except on a few days before the attacks of urticaria, demonstrates the varying activity of the skin and explains the difficulty experienced in obtaining skin reactions. Stuart and Farnham [23] reported negative skin reactions to egg with both the cutaneous and the intradermal tests in a child with marked cutaneous edema and vomiting due to eggs. In a study of 260 cases of angioneurotic edema and urticaria, Menagh [24] concluded that in 48.8 per cent of the cases biliary tract disease was the only etiologic factor. It is possible that with "elimination diets," as recommended in this article, food allergy might have been discovered in some of these cases.

Because of these facts, as in other disturbances due to food allergy, diet trial by the use of "elimination diets" has been necessary to diagnose and control most cases of urticaria.

ANGIONEUROTIC EDEMA

Fourteen cases with angioneurotic edema as an outstanding symptom are presented. The average of 38 years indicates that this may be an adult manifestation of allergy. Angioneurotic edema was the only evidence of food allergy in 57 per cent of the cases. Many food reactions were obtained, but it was necessary to use dietary trial to determine finally the active food sensitizations. I feel that food allergy should be considered in every case of angioneurotic edema even in the absence of history or skin reactions indicative of food allergy, and that the skepticism of most physicians, as expressed recently by Drysdale,[25] in regard to food allergy as the common cause of angioneurotic edema is not justified. Two cases which have not responded to dietary control were possibly due to an obscure focus of infection [26] or to a biliary tract disease, as suggested by Menagh.

Angioneurotic edema is characterized by transient nonitching swellings affecting any part of the body, especially the face and extremities. Such swellings may occur in the gastro-intestinal tract, producing symptoms of abdominal allergy or even acute obstruction already mentioned as a cause of unnecessary surgery. Angioneurotic edema probably occurs in the brain or even in the spinal cord, giving rise to severe migraine, transient hemiplegia, transient amblyopia, aphasia and paresthesia, as well as to vertigo and psychoneurotic tendencies discussed by Foster Kennedy.[27]

Such cerebral edemas have led to injections in the fifth nerve for supposed neuralgias or to decompressions in certain cases, as reported by Bassoe.[28] Duke [29] has also described a case of Ménière's syndrome due to allergy. Osler [30] has commented on the hereditary character of this malady. None of my cases present a long hereditary history. The laryngeal edema which occurs especially in the hereditary type is productive of serious and even fatal dyspnea. Marked mental confusion, restlessness, irritability, dizziness and drowsiness was present in many of my patients with cutaneous and abdominal allergy, indicating a cerebral edema or angiospasm, possibly of a mild grade.

All fourteen cases have been completely controlled by "elimination diets" and a few histories are briefly presented:

CASE 7.—A woman, aged 30, had had intermittent, painless, nonitching swellings around both eyes for four months. She had had hay-fever. The skin reactions were negative. Wheat and eggs were found causative of the angioneurotic edema.

CASE 9.—A man, aged 34, had had nonitching swellings of the face and legs for ten years occurring nearly every day for several years. Wheat, corn and pork reacted positively by the

20. Fenwick and others: The Health of the Child of School Age, Oxford Press, p. 76.
21. Sansum, W. D.: The Normal Diet, St. Louis, C. V. Mosby Company.
22. Schloss, O. M.: A Case of Allergy to Common Foods, Am. J. Dis. Child. **3**: 341 (June) 1912.
23. Stuart, H. C., and Farnham, Marynia: Acquisition and Loss of Hypersensitiveness in Early Life, Am. J. Dis. Child. **32**: 341 (Sept.) 1926.
24. Menagh, F. R.: The Etiology and Results of Treatment in Angioneurotic Edema and Urticaria, J. A. M. A. **90**: 668 (March 3) 1928.
25. Drysdale, H. H.: Acute Circumscribed Edema, J. A. M. A. **89**: 1390 (Oct. 22) 1927.
26. Barber, H. W.: Guy's Hosp. Rep. **81**: 385, 1923.
27. Kennedy, Foster: Cerebral Symptoms Induced by Angioneurotic Edema, Arch. Neurol. & Psychiat. **15**: 28 (Jan.) 1926.
28. Bassoe, Peter, in discussion on Drysdale, H. H.: Acute Circumscribed Edema (Quincke), J. A. M. A. **89**: 1393 (Oct. 22) 1927.
29. Duke, W. W.: Ménière's Syndrome Caused by Allergy, J. A. M. A. **81**: 2179 (Dec. 29) 1923.
30. Osler, William: Hereditary Angioneurotic Edema, Am. J. M. Sc. **95**: 362, 1888.

intracutaneous test, and exclusion of wheat, corn, pork, cauliflower and onions has given complete relief.

I have studied two cases of generalized swelling of the body in allergic patients which was probably a diffuse type of angioneurotic edema.

ECZEMA

Food allergy as a frequent cause of eczema is emphasized by the work of O'Keefe [31] and Shannon [32] in nursing infants, and Schloss [33] in children.

A group of sixteen cases of eczema in which food allergy was found to play the entire or a major rôle in the etiology is included in this series. This small number does not indicate the frequency with which food causes eczema especially in childhood. Many other cases apparently due to food allergy have been treated with disappointing results probably because of the activity of other types of obscure allergy and frequently because of poor cooperation or too brief a period of treatment. In this series skin reactions to one or more foods were present along with frequent reactions to other antigens, such as animal emanations and dusts, in all but three cases. Blackfan [34] found intracutaneous tests more delicate than the cutaneous, but more difficult to interpret, and observed negative reactions in the presence of eczema clinically due to the food. Vaughan [35] has recently stated that food allergy is a frequent cause of eczema and lays much emphasis on the delayed cutaneous reactions as indicative of sensitization. I have found, however, that the rôle of suspected foods in the production of the eczema had to be determined by diet trial and, because of the chronic nature of the skin lesions in eczema, such trial was often slower in evaluation than in other allergic conditions.

However, this group of cases controlled entirely or in part by food elimination illustrates the recognized importance of food allergy in eczema. A few illustrative cases follow:

Case 11.—A woman, aged 53, had had eczema of the skin of the eyelids with much irritation of the conjunctivae and constant indigestion of a distressing type all her life. Both conditions had resisted treatment from various specialists. Hayfever had occurred after most meals. Skin reactions were negative, but "elimination diets" have shown that her eczema, hay-fever, indigestion and probably her mental depression were due to wheat and milk allergy.

Case 12.—A child, aged 6 years, had had severe eczema of the arms, legs, face and neck for four years. The patient gave positive reactions to wheat, milk, horsehair and several other antigens. Environmental and dietary control eradicated the eczema. Return to wheat and milk produced a violent exacerbation.

MIGRAINE

Food allergy, in my experience, must be considered as a possible cause of all cases of migraine. During the last two years, thirty cases of migraine have yielded to treatment based on food allergy and are included in this series. A family history of allergy often of migraine or abdominal allergy was obtained in 57 per cent of the cases. Food allergy was determined by the history of food disagreements, skin tests and "elimination diets."

Hartsock [36] recently minimized food allergy as a cause of migraine, laying emphasis on duodenal stasis and intestinal toxemia. His therapy includes exclusion of bread, wheat, cereals, potatoes, egg and milk as recommended by Brown,[37] which, as it happens, eliminates the most common foods to which sensitization exists. His recommendations, moreover, of rest, sedatives, salines, mild mercurous chloride and duodenal drainage have not been necessary in my cases.

That food allergy is responsible for many cases of migraine has also been pointed out by Andresen,[9] by Rowe,[4] and by Vaughan [38] in an article which reports ten cases of migraine relieved and reproduced on the basis of food sensitization. Miller and Raulston,[39] continuing the work of Pagniez and his associates in France, found improvement in many cases of migraine treated with peptone intravenously. Physicians, however, hesitate in accepting food allergy as the main cause of migraine. This is largely due in my mind to the fact that skin reactions to foods are often absent or difficult to interpret, the sensitization being localized in the cerebral tissues rather than in the skin.

A few typical histories follow:

Case 14.—A girl, aged 22, had had headaches constantly for four years and intermittently for ten years before. She had hives in childhood and angioneurotic edema at 17, followed by eczema on the face for two years. She had "sour stomach," abdominal cramps, constipation and a bad taste in her mouth for years. An appendectomy to relieve these symptoms six years ago did not help, and surgery on the antrums had been recently advised. Milk had always been distasteful, though she was forced to drink it in childhood. Orange and lemon gave hives. Walnuts made her tongue itch, and all fruits disagreed with her. She reacted to nearly all fruits and to milk. By "elimination diets" her symptoms were found to be due to wheat, milk, orange, lemon and apple.

Case 15.—A woman, aged 27, had had headaches in the left temporal region lasting from two to three days, every week or two, for ten years. Nausea occurred with the severe attacks. The patient had marked constipation for seven years, had a bad taste in the mouth most of the time, and was weak and toxic. Food reactions were not present, but wheat, milk, eggs and potato were found responsible for the symptoms, including constipation.

BRONCHIAL ASTHMA

Food allergy is the sole or complicating cause of many cases of bronchial asthma in adult life as well as in childhood. I have pointed out that food allergy is less important as a cause of asthma [7] in both adults and children than is pollen or animal emanation allergy. Peshkin [40] arrived at the same conclusions. A group of forty-five such cases has been included in this series. The average age is 25 years, and 65 per cent of the cases gave positive family histories of allergy.

In this group are included several cases of persistent cough in children without any asthmatic symptoms which was definitely due to food allergy.

Food asthma especially in childhood is frequently preceded by eczema or hives, and is usually intermittent. The spells of asthma are often initiated by sneezing, nasal congestion, usually mistaken for colds or pharyngeal irritation, and are followed by asthma and fever for a few days, ending with a cough for several days. Such spells are usually independent of

31. O'Keefe, E. S.: Boston M. & S. J. **183:** 569 (Nov. 11) 1920; **185:** 194 (Aug. 18) 1921.
32. Shannon, W. R.: Demonstration of Food Proteins in Human Breast Milk, Am. J. Dis. Child. **22:** 223 (Sept.) 1921.
33. Schloss, O. M.: Allergy in Infants and Children, Am. J. Dis. Child. **19:** 433 (June) 1920.
34. Blackfan, K. D.: Cutaneous Reactions from Proteins in Eczema, Am. J. Dis. Child. **11:** 441 (June) 1916.
35. Vaughan, W. T.: Allergic Eczema, J. Lab. & Clin. Med. **13:** 24 (Oct.) 1927.
36. Hartsock, C. L.: Migraine, J. A. M. A. **89:** 1488 (Oct. 29) 1927.
37. Brown, T. R.: Rôle of Diet in Etiology and Treatment of Migraine and Other Types of Headache, J. A. M. A. **77:** 1396 (Oct. 29) 1921.
38. Vaughan, W. T.: Allergic Migraine, J. A. M. A. **88:** 1383 (April 30) 1927.
39. Miller, J. L., and Raulston, B. O.: Treatment of Migraine with Peptone, J. A. M. A. **80:** 1895 (June 30) 1923.
40. Peshkin, H. M.: Asthma in Children: Etiology, Am. J. Dis. Child. **31:** 763 (June) 1926.

season and become more frequent, at times producing a constant bronchial asthma. Other types of sensitization usually exist or develop in these cases, which complicates the therapy considerably.

OTHER MANIFESTATIONS OF FOOD ALLERGY

1. Epilepsy has been discussed from the point of view of food allergy by Ward [41] in 1922 and 1927; Howell [42] in 1923; Wallis and Nicol [43] in 1923, and J. L. Miller [44] in 1924. Wallis and Nicol found a considerable number of a series of 122 epileptics benefited by diet adjustment based on skin testing together with the oral administration of peptone. It is felt that, if "elimination diets" similar to those used by me had been used with the skin tests to determine the food sensitization, better results might have been obtained. I [4] have also stated that the improvement obtained with high ketogenic diets may be due in some cases to the exclusion of foods such as wheat, milk and potato to which patients are commonly sensitive. The resemblance of epilepsy to migraine suggests that food allergy which is probably the major cause of migraine is also a frequent cause of epilepsy. Two adults who were having typical frequent attacks of idiopathic epilepsy have been perfectly controlled with "elimination diets."

2. Hay-fever and sinus congestion are not infrequently due to food allergy alone. A woman physician had marked nasal congestion and discharge from one to two hours after meals associated with dull epigastric pain and constipation, all of which symptoms were relieved by the exclusion of wheat from the diet. Nasal congestion, therefore, may result from food allergy and, as in all allergic conditions in the nose, surgery is contraindicated until proper allergic therapy has controlled the manifestations due to sensitization.

3. Bladder allergy is a very definite condition described by Duke.[45] Blaustein [46] has recently reported a case of angioneurotic edema of the urogenital tract. Bladder symptoms especially in a patient with a positive family or personal history of allergy in which urinary signs are negative should lead the urologist to suspect allergy. A recent case of bladder allergy has been under my observation.

4. Attention is directed to what I have called allergic intoxication and malnutrition. The effects of food allergy seem to disturb the whole body in these patients and may not produce any of the typical manifestations I have discussed. Underweight, asthenia and malnutrition are frequently present in young people afflicted with a food allergy. The demonstration of Schloss and Worthen [47] and Anderson and Schloss [48] of the absorption of foreign proteins from the intestinal tracts of children with nutritional disorders and the presence of precipitins to cow's milk and of milk protein itself in the blood of marasmic infants would explain in part the intoxication and malnutrition resulting from food allergy.

5. Fever in children is a common result of food allergy especially in gastro-intestinal and asthmatic attacks, probably because of entrance of food proteins into the blood stream or to the allergic reaction in the sensitized tissues. Fever in adult life may be the result of the same cause. Thus, Andresen [9] comments on fever due to food sensitization. My confrère Dr. Sherrick has observed a patient in whom sensitization to milk produces a temperature of 105 F. Thus food allergy as a cause of fever in allergic individuals and at the basis of unexplained temperatures throughout life must be kept in mind.

6. I confirm the opinion of Duke that menstruation can be disturbed and made irregular and painful by food sensitization.

7. Hypotension frequently occurs in patients with marked food allergy of long standing.

8. Alexander and Eyermann [49] have described a case of Henoch's purpura which they attribute to food allergy.

TABLE 3.—*Idiosyncrasies and Positive Skin Reactions to Foods in One Hundred Seventy-Five Food Sensitive Patients*

Major Condition	Food Dislikes or Disagreement	Positive Skin Reactions						Total Cases
		Food Alone	Total Food*	Animal Emanation	Dusts	Pollens	Orris Root	
Abdominal allergy.....	40	12	22	7	8	8	0	50
Urticaria.....	6	10	13	3	3	2	0	20
Angioneurotic edema.....	7	8	9	2	1	1	0	14
Eczema.....	5	4	13	8	3	2	4	16
Migraine.....	21	11	17	4	2	2	3	30
Asthma.....	21	0	25	16	19	9	2	45
Total.....	100	45	99	40	46	24	9	175
	57%	26%	57%	23%	26%	14%	5%	

* Patients in this column reacted to food as well as to other antigens.

SKIN REACTIONS TO FOODS

The cutaneous scratch method has been used in the routine testing of all patients in this series. Tests have been done with all foods and condiments and in many cases with other antigens indicated in table 3. The frequency of positive and negative cutaneous reactions to foods to which definite sensitization was present in the 175 patients studied in this article is shown in table 4. Wheat, eggs, milk, chocolate, tomato, cabbage, orange and potato are seen to be the most common foods that produce allergic manifestations. However, it is known that patients may become sensitized to any food or condiment. The frequency with which the cutaneous test fails to show definite food allergy is to be emphasized because of the common use of this method of testing by physicians. The intracutaneous method with food extracts made by Coca's method has been used in many patients negative to the scratch test with frequent positive reactions. However, Duke, Stuart, and I and many others have observed negative intracutaneous tests with foods to which patients were sensitive. Because of the potential danger of this method it should be used with care in those patients giving negative cutaneous reactions to the foods in question. The use of passive transfer as recommended by Walzer [50] and Kramer has been used in certain cases without results warranting the required technic.

41. Ward, J. F.: Protein Sensitization as Possible Cause of Epilepsy, New York State J. Med. **115**: 592 (May 17) 1922. Ward, J. F., and Patterson, H. A.: Protein Sensitizataion in Epilepsy, Arch. Neurol. & Psychiat. **17**: 427 (April) 1927.

42. Howell, L. P.: Epilepsy and Protein Sensitization, Ohio State M. J. **19**: 660 (Sept.) 1923.

43. Wallis, R. L. M.; Nicol, W. D., and Craig, M.: Importance of Protein Hypersensitivity in Diagnosis and Treatment of Epileptics, Lancet **1**: 741 (April 14) 1923.

44. Miller, J. L.: Evidence That Idiopathic Epilepsy Is a Sensitization Disease, Am. J. M. Sc. **168**: 635 (Nov.) 1924.

45. Duke, W. W.: Food Allergy as a Cause of Bladder Pain, Ann. Clin. Med. **1**: 117, 1922; Food Allergy as a Cause of Irritable Bladder, New York State J. Med. **116**: 505 (Nov. 1) 1922.

46. Blaustein, N.: Angioneurotic Edema of Entire Gastro-Urinary System, J. Urol. **16**: 379 (Nov.) 1926.

47. Schloss, O. M., and Worthen, T. W.: The Permeability of the Gastro-Enteric Tract of Infants to Undigested Protein, Am. J. Dis. Child. **11**: 342 (May) 1916.

48. Anderson, A. F., and Schloss, O. M.: Allergy to Cow's Milk in Infants with Nutritional Disorders, Am. J. Dis. Child. **26**: 451 (Nov.) 1923. Anderson, A. F.; Schloss, O. M., and Myers, C.: Proc. Soc. Exper. Biol. & Med. **23**: 180, 1925.

49. Alexander, H. L., and Eyermann, C. H.: Food Allergy in Henoch's Purpura, Arch. Dermat. & Syph. **16**: 322 (Sept.) 1927.

50. Walzer, M., and Kramer, S. D.: Indirect Method of Testing for Conditions of Atopic Sensitiveness, J. Immunol. **10**: 835 (Sept.) 1925.

THE DETERMINATION OF SPECIFIC FOODS PRODUCING ALLERGIC SYMPTOMS

When it has been decided that food allergy may be active in the patient, the determination of the foods causing sensitization is next in order:

1. For this a history of definite food dislikes and especially disagreements is often very helpful since patients, especially children, frequently have distastes for or are upset by foods to which they are sensitive.

2. Positive skin reactions to foods also point to them as possible causes of allergic symptoms. However, such tests must be confirmed by "elimination diets" which exclude the indicated foods with relief of symptoms.

3. Finally, when food allergy is suspected and skin reactions are negative, "elimination diets" which exclude foods to which the data in table 4 show that patients are most frequently sensitive will usually reveal the foods producing the allergy. These diets will be described in the following section.

TABLE 4.—*Positive and Negative Cutaneous Reactions to Foods to which Clinical Sensitization Existed in a Series of One Hundred Seventy-Five Patients*

Food	Sensitive Patients with —Patients— Negative Reactions	Positive Reactions	Percentage of Sensitive to Food	Food	Sensitive Patients with —Patients— Negative Reactions	Positive Reactions	Percentage of Sensitive to Food
Wheat	45	54	57	String beans	2	..	1
Eggs	40	21	35	Tomato	9	6	9
Milk	44	11	31	White potato	6	4	6
Oats	2	6	5	Sweet potato	2	2	2
Rye	2	3	3	Radish	..	1	0.5
Rice	4	3	4	Peas	1	1	1
Corn	2	2	2				
Buckwheat	..	2	1	Apricot	2	4	4
				Bananas	4	5	5
Beef	2	2	2	Apples	5	2	4
Lamb	..	3	2	Cantaloup	4	3	4
Pork	5	3	5	Cherry	1	4	3
Chicken	2	..	1	Grapefruit	2	5	4
Turkey	1	..	0.5	Figs	2	2	2
				Lemon	2	1	2
Lobster	2	3	3	Prune	1	1	1
Clam	1	2	2	Plum	..	1	0.5
Shrimp	3	3	3	Pineapple	2	1	2
Oyster	2	4	4	Peach	3	3	4
Crab	2	1	2	Orange	8	6	8
Salmon	4	3	4	Watermelon	1	1	1
Salame	1	..	0.5	Grape	3	2	3
Tuna	1	1	1	Raisin	2	1	2
Halibut	1	..	0.5				
				Blackberry	1	2	2
Asparagus	1	..	0.5	Raspberry	2	1	2
Artichoke	1	1	1	Strawberry	6	3	5
Celery	3	4	4				
Beets	..	1	0.5	Honey	2	..	1
Cucumber	3	..	2	Vinegar	2	..	1
Cabbage	10	6	9	Mustard	2	1	2
Carrots	5	3	5	Pepper	1	1	1
Bell pepper	1	..	0.5	Olive	1	2	2
Beans (baked)	3	1	2	Cottonseed	1	1	1
Cauliflower	6	5	6				
Garlic	..	1	0.5	Chocolate	15	2	10
Lima beans	1	1	1	Coffee	3	1	2
Mushrooms	1	..	0.5	Tea	1	1	1
Lettuce	4	2	4				
Egg plant	..	2	1	Almonds	1	2	2
Onion	2	1	2	Peanuts	2	3	3
Squash	2	1	4	Walnuts	5	3	5
Turnips	2	..	1				

TREATMENT

Food allergy frequently is the sole cause of allergic symptoms as it was in 72 per cent of the cases in this series. However, when other types of sensitization as indicated in table 3 are participating in the production of allergic disturbances, the problem may become one of the most complicated in medical practice.

The treatment of food allergy itself may be considered under three heads:

1. When skin reactions are positive to certain foods or there is a history of disagreements to definite foods, simple exclusion of such foods frequently controls the allergic manifestations.

2. When skin reactions are negative or diets excluding all foods giving positive reactions are not effective, the use of food trial is indicated.

I feel that such food trial is most effectively carried out by my so-called elimination diets. Such diets contain foods, as shown in table 4, which are infrequently the cause of allergic disturbances. The general principle in the formulation of these diets, moreover, has been to include one or two starches, and meats, from two to four vegetables and fruits, together with sugar, oil and salt. Oil may be either olive, cottonseed or maize oil according to the likelihood of sensitization to any of them, and comparatively large amounts of oil should be taken on salads and of sugar on fruits and in fruit drinks in order to increase the calories. The physician or the dietitian can help the patient plan quite satisfactory menus from the foods in these various diets, insisting on the strict exclusion of even the slightest ingredient in the diet which is not in the prescribed list. Four elimination diets are detailed. The menu for diet 1 illustrates the possibility of insuring with such an "elimination diet" a fair intake of protein, vitamins, mineral salts and calories.

The diet best suited for the patient can be selected by the physician and other similar diets can be formulated if the physician desires. I have found that diet 1 has been most useful, though occasionally sensitizations are present to one or more foods in this diet, necessitating the substitution of similar foods to which patients are not sensitive, as shown in diets 2 and 3. Diet 4 is planned for a possible sensitization to all meats.

TABLE 5.—*"Elimination Diets" for the Treatment of Food Allergy*

	Diet 1	Diet 2	Diet 3	Diet 4	Diet 5
Cereal	Rice (natural)	Corn	Rice Tapioca	Rice Rye	Milk alone for the test period 2-3 quarts a day
Bread	None	Corn pone*	None	Rye Rice† Ry Crisp	
Meat or fish	Lamb	Bacon Chicken	Beef	Cod, halibut and white fish	
Vegetables	Lettuce Spinach Carrots	Squash Asparagus Peas Artichokes	Tomatoes Celery String beans	Lettuce Carrots Peas Beets	
Fruits and jams and fruit drinks	Lemon Pears Peaches	Pineapple Apricot Prunes	Grapefruit Pears Peaches	Pineapple Apricots Pears	
Miscellaneous	Sugar Olive oil Salt Olives (unstuffed) Maple syrup Gelatin	Sugar Mazola oil Salt	Sugar Wesson oil Salt Gelatin Maple syrup	Sugar Olive oil Salt Olives (unstuffed)	

* Corn pone is made with cornmeal, salt, water and Crisco.

† Rye rice bread: ⅓ cup rye flour, ⅔ cup rice flour, 6 level tsp. B.P. (Royal), 4 level tsp. sugar, ¼ tsp. salt, ⅔ cup water, ½ tsp. shortening. This recipe makes eight small muffins. This recipe doubled can be made into a loaf. Perhaps more palatable if toasted. Royal Baking Powder does not contain egg.

The milk diet may be used if the patient does not give indications of milk sensitization. In such a case if symptoms are relieved with the exclusive use of milk, other foods may be gradually added, the effect of such additions being watched.

I confirm the opinion of Van Leeuwan [51] and Duke [2] that certain patients are sensitive to entire groups of foods, such as fruits, cereals, meats or vegetables. In

51. Van Leeuwan, W. S.: Allergic Diseases, Philadelphia, J. B. Lippincott Company, 1925.

V 91 1928

such cases, special diets must be formulated by the physician.

Suspected food allergy should not be ruled out even in the presence of definite pathologic conditions until several diets have been taken without relief, each for a period of from five to seven days. During this trial, patients should be encouraged to eat enough to prevent loss of weight, and should adhere strictly to the foods prescribed. The physician should be critical of the effect of each food and substitute similar foods for any causing disturbance. If symptoms are relieved, one or two vegetables and fruits may be added the second week. Meats, vegetables fruits and starches may be gradually added in the succeeding weeks, any foods which reproduce symptoms being excluded. Wheat, eggs and milk should be added last and their effect carefully scrutinized. The building of a satisfactory diet frequently requires cooperation of the patient and adjustment of the diet by the physician for several weeks.

An insistence on total exclusion of all foods to which the patient is sensitive is absolutely necessary for good results. This is important since severe allergic symptoms may result from minute amounts of a food. Mild sensitizations to several foods also undoubtedly occur, the summation of which may produce definite symptoms. Finally it is most important, as I [4] have recently emphasized, to use "elimination diets" which will not produce deficiency diseases and which will have enough vitamins, mineral salts, protein and calories for proper metabolism.

3. The following procedures have also been recommended to counteract food allergy:

(*a*) Peptone has long been administered by mouth for nonspecific desensitization to foods.[52] I have not obtained satisfactory results from such use of peptone in marked cases of food allergy, though it seems to ameliorate some of the manifestations of mild food sensitization when given in from one-half (2 Gm.) to three-fourths (3 Gm.) drachm doses about forty-five minutes before meals. The intravenous use of peptone as recommended by Miller [39] has not yielded the results obtained by the use of "elimination diets." However some of the indefinite disturbances of food allergy are benefited by peptone by vein.

(*b*) Nonspecific protein therapy in the form of vaccines or, as Van Leeuwan [51] suggests, with tuberculin or with milk injections in patients nonsensitive to milk may be of benefit in ameliorating the symptoms of food allergy. I, however, have not used such therapy with satisfactory results.

(*c*) The administration of calcium lactate by mouth or calcium chloride by vein has not been of definite benefit in patients with food allergy. Quartz light therapy is also ineffective in the control of symptoms due to allergy except in the increased general resistance resulting from its use.

(*d*) Desensitization to foods gradually occurs in some cases from their prolonged exclusion from the diet. It is also possible to desensitize some patients to a common food, such as milk or egg, by feeding gradually increasing amounts beginning with a minute quantity such as one one-thousandth drop of milk or egg and taking several months before one-half glass of milk or one half of an egg is given. Some patients seem impossible to desensitize with such methods. Hypodermic desensitization to common foods has not yielded satisfactory results.

52. Pagniez, P.; Vallery-Radot, P., and Nast, A.: Presse méd. **27**: 172 (April 3) 1919. Pagniez, P., and Nast, A.: Ibid. **28**: 253 (April 28) 1920. Auld, A. G.: Brit. M. J. **1**: 696 (May 14) 1921.

SUMMARY

1. Food allergy as a cause of abdominal pain and gastro-intestinal symptoms, urticaria, angioneurotic edema, eczema, migraine and bronchial asthma is frequent in adults as well as in children.

TABLE 6.—*Menu for Diet 1.*

Breakfast:	
Rice	Boiled, natural, served with peach or pear juice and sugar Fried in olive oil and served with sugar or maple syrup
Pears or peaches	Large helping, fresh or canned
Drinks	Lemonade with plenty of sugar
Lunch and Dinner:	
Soup	Lamb broth with rice and carrots
Salad	Lettuce with pears or peaches with olives and olive oil and lemon. Green or ripe olives, unstuffed
Meats	Roast lamb with gravy made with rice flour Broiled lamb chops
Vegetables	Spinach or carrots. Boiled natural rice
Dessert	Lemon gelatin or pears or peaches
Drinks	Lemonade with plenty of sugar

1. Absolutely no foods other than those specified in each diet can be used. Thus, in diet 1 rice must not be fried with butter or lard but only with the fat specified, which is olive oil. Absolutely no bread, milk, cream or other nonspecified foods can be used.

2. Prescribed fruits can be used in drinks, in salads, for desserts and for jams and sauces.

3. Gravies for meats and sauces for vegetables can be thickened only with flour allowable; i. e., rice in diet 1; cornstarch in diet 2, and so on.

4. Olive oil in diet 1, corn oil in diet 2 and cottonseed oil in diet 3 are indicated according to sensitizations to olive, corn or cottonseed antigens. These may be interchanged if necessary.

5. Calories must be increased by plenty of sugar, oil and starch prescribed. Vitamins must be assured by plenty of vegetables and fruits prescribed.

6. In diet 2, baked corn pone made with corn meal and water, or corn meal mush fried in maize oil or bacon fat eaten with prune or apricot juice or plain sugar syrup would be in order.

7. In diet 3, tapioca, baked with peaches and sugar and flavored with orange or orange peel may be suggested.

8. In diet 4, if the patient is sensitive to fish but not to eggs, eggs may be substituted.

9. These diets are models on which other diets composed of foods indicated by history of food sensitizations and skin tests may be formulated if desired by physicians. Diet 1 has been found especially useful either as it is or with foods substituted for those to which patients were sensitive.

10. The "elimination diet" found to relieve the patient's symptoms can be increased by gradual addition of foods to which the patient is found to be nonsensitive as outlined in this article.

2. Epilepsy, perennial hay-fever and nasal congestion, bladder pain and distress, unexplained fever and hypotension are at times due to food sensitization.

3. Food allergy must be considered as a cause of such conditions, especially in the presence of a family or personal history of allergy or with a history of food dislikes or disagreements.

4. The diagnosis of food allergy must be made through the aid of skin tests and especially through diet trial because of the absence of skin reactions in many food sensitive patients.

5. "Elimination diets" in such diet trial facilitate the diagnosis and treatment of manifestations of food allergy.

242 Moss Avenue.

ABSTRACT OF DISCUSSION

DR. W. W. DUKE, Kansas City, Mo.: Food allergy is a very important clinical condition. It is very common, and it is frequently very grave. I do not know of any disease which can prove so rapidly fatal as allergy. For example, a child sensitive to wasps died a few minutes after a wasp sting. In another case, shock following two stings produced such violent vomiting, diarrhea and edema that the patient would have died had he not been given repeated doses of epinephrine. Dr. Rowe

spoke about headaches. I do not know of any headache more severe than an allergic headache. It is observed during a transfusion or an arsphenamine reaction, and may occur as a result of a food reaction. Bladder and kidney reactions may be most severe. I have observed abdominal reactions resembling gallbladder colic. Morphine, in ordinary dosage, may not relieve the pain. Epinephrine usually relieves it promptly. In one case of food allergy, kidney pain had required frequent administration of morphine. Epinephrine, however, was found more quickly effective, and adjustment of diet prevented the attacks. Allergy is an important cause of emaciation. One patient sensitive to many articles of food vomited almost everything she ate. On the elimination of certain foods, she gained at a rate of 1 pound a day for more than a month. Food allergy is important because it simulates many other diseases. It can usually be detected clinically, however, or through limited diets or through a therapeutic test with epinephrine. If given adequately epinephrine will usually relieve allergy, unless complications prevent. Finally, food allergy is an important cause of serious complicating diseases. The turmoil that accompanies an attack of allergy is often enough to stir up infection as other disease in the affected organ. I wish to compliment Dr. Rowe on his clear, concise presentation of this subject.

DR. LEON UNGER, Chicago: I can corroborate Dr. Rowe's statement as to the frequency of allergy. The manifestations of allergy vary considerably, ranging from brain to bladder trouble and including the eczemas in children, asthma, and hay-fever, all of which are included under the one common term of allergy. The important point brought out is the likelihood of mistaken diagnoses in cases really due to allergy. Several years ago a physician was operated on for appendicitis. He had been suffering some pain in the lower right side, but the temperature had been normal. He had recurring attacks of pain. Operation showed a slightly edematous appendix. He had hay-fever in addition to the attacks of abdominal discomfort, and I have little doubt that the operation was quite unnecessary. As Dr. Rowe has said, the skin tests are satisfactory in a percentage of the cases. In our cases at the Northwestern University asthma and hay-fever clinic, we have found 50 per cent positive reactions in cases of food allergy, about 75 per cent positive reactions in asthma and about 99 per cent positive skin tests in hay-fever. Our experience with the intracutanous skin test has not been more satisfactory than with the ordinary cutaneous test. When cutaneous tests have been negative, intracutaneous tests have also been negative in a majority of cases. Injections of peptone, calcium chloride, and milk have all been very disappointing in the treatment of cases of food allergy, and the good results have occurred in the cases in which the offending material has been discovered, and when it could be eliminated properly. We have found that eggs, wheat and milk are by far the most important proteins concerned. Desensitization has been attempted in the important foods only, as wheat, milk and eggs. We have not tried to desensitize against such foods as shellfish, strawberries and vegetables, which can be eliminated safely and easily. We have tried both by eliminating wheat, milk and eggs, and by the use of the hypodermic method to obtain results. In about 25 per cent of our cases, we have obtained good results by hypodermic desensitization, especially in wheat allergy, although in no case of wheat sensitization in our experience has a baker, for instance, been able to go back to his occupation as a baker. I have one patient, a woman, who had had wheat asthma for thirty years. She is now completely desensitized to wheat and is able to bake, handle flour, and eat wheat of all kinds.

DR. ORVILLE HARRY BROWN, Phoenix, Ariz.: So far as contact with food is greater than contact with pollen, food is proportionately a much greater cause of allergy than is pollen. The substance to which a person is most apt to become sensitized is the one with which he is most in contact. The offending foods, then, are likely to be those eaten in greatest quantities. The converse also should be true. If one keeps all food to which a person is sensitized from him for a sufficient length of time, he should become desensitized. I am confident that this is true. The following theory seems to explain the facts: An enzyme P splits the whole protein molecule in the tissues. A toxic part producing the allergic phenomena is split by a second enzyme T, which has a difficult task as compared with that of P. Lack of space prevents elucidation of this. Therefore, if the whole protein reaches the blood in adequate quantities, T is soon overwhelmed and an allergic state exists. It is generally necessary to eliminate all reactors, even minor ones, to effect desensitization. In mild cases results are produced in a short time. Regarding symptoms, sensitization includes allergy and the inflammatory conditions which come from foods. Any tissue may be affected, and all sorts of symptoms produced. Whenever there are symptoms out of proportion to the discoverable etiology, it is well to think of sensitization, particularly of food sensitization. In hay-fever the symptoms do not completely clear up under treatment for hay-fever. The treatment of coexisting food sensitization may be of great benefit. In line with the theory advanced, improving the digestion places a barrier in the way of the food getting to the tissues in a whole, or a partly digested, state. I have used with satisfactory results calcium iodide, 4 drachms, dilute hydrochloric acid, 4 ounces and compound elixir of pepsin to make 8 ounces. I have a patient take from one-half to 1 drachm in a full glass of liquid, sipped slowly with each meal. I also emphasize that mastication must be thorough, that one should not eat when tired, and that overeating, particularly of any one food at one time, should be avoided.

DR. SAMUEL E. MUNSON, Springfield, Ill.: For the last three or four years I have been using skin tests for determining sensitization from foods in cases of urticaria, eczema, hay-fever and asthma. In November, 1927, I saw a woman, aged 37, who had been confined fifteen days previously, after spontaneous delivery. The child was stillborn. Fever had continued since labor, with urticarial rash distributed over various parts of the body. There had been pain and discomfort in the right side of the chest, at the base of the lung. Other physical observations were negative. On account of the great discomfort from the severe urticaria, skin tests were made. The patient was found to be susceptible to two or three foods, one of which was lettuce. These were excluded from the diet, and in a few days the fever subsided and the skin symptoms disappeared. The pain in the chest subsided and the patient improved in every way. When it seemed that she was ready to return home, the nurse, forgetting the former instructions, gave the patient lettuce and one or two other foods to which she had been susceptible. Overnight there was a sudden recurrence of pleuritic pain in the side, with fever, pulse acceleration, and a violent reaction of the urticarial skin symptoms all over the body, with asthmatic symptoms. When these foods were discontinued, the patient's symptoms all subsided in twenty-four hours.

DR. JOSEPH BROWN, Des Moines, Iowa: I should like to hear Dr. Rowe give some theory of the causation of this food allergy. I have often wondered what took place in the human mechanism that would make persons suddenly sensitive to any article of diet. One of the worst cases of hay-fever I ever saw was caused by honey. I believe that there is some relation between high blood pressure and food allergy.

DR. W. W. HAMBURGER, Chicago: Dr. Rowe said that it would take some time for the manifestations to disappear if the food causing them were found. About how long after elimination of the foods will the symptoms disappear? He also mentioned the relation of the heart to allergy. What are the heart manifestations of allergy? Would eliminating the common foods, such as eggs, wheat and milk, mean putting the patient on a diet that eliminates eggs first, then later wheat and still later milk, or are all three eliminated from the diet at the same time?

DR. A. H. ROWE, Oakland, Calif.: There is a possibility that some of the cardiac irregularities, particularly paroxysmal tachycardia, may be due to allergy. As yet I have no definite evidence in regard to this question. Dr. Mosenthal yesterday reported a case of hypertension that seemed to be due to protein sensitization. I have tried out my "elimination diets" on a considerable number of patients with hypertension without success. In regard to the possibility of obtaining results by the exclusion of only one or two foods from the diet, I have found that patients who are sensitive to common foods are frequently sensitive to certain uncommon ones and that my "elimination diets" give more rapid and satisfactory results than are obtained with the successive exclusion of single foods from the menu. These "elimination diets" can be increased rather rapidly,

V 9
192

so that in the course of a few weeks a balanced and satisfactory diet is being taken. Certain cases of eczema due to food clear up within a week or two, though it may be difficult to eradicate certain residual manifestations in the skin. My series does not present all the possible sensitizations to foods and condiments. I have seen several cases of honey sensitization but these have not been included in the present series. I wish to emphasize that the physician must be alert to the frequent existence of food allergy, especially in adults, and be aware of its various manifestations. Any physician can diagnose and control a large number of these cases with the diets that I have suggested. However, he must make a careful diagnostic study of his patient to rule out other disease, and he must follow the indicated suggestions in regard to building of the diet, making certain that the patient is absolutely excluding all foods which are forbidden. Warren Vaughan, who was to have discussed my paper, agrees that many food sensitive patients have negative reactions and feels that with the use of "elimination diets" it will be possible to discover and control more cases of food allergy than can be done by depending entirely on skin reactions.

TWO HUMAN CASES OF RABIES

THURMAN B. RICE, M.D.
Associate Professor of Bacteriology and Public Health, Indiana University School of Medicine
INDIANAPOLIS

Recent studies seem to indicate that rabies infection is on the increase in spite of the fact that we have an excellent, though not absolutely perfect, prophylactic measure. The two cases here reported were the only human cases in Indiana during 1927, and, peculiarly enough, they were seen in the space of three months at the James Whitcomb Riley Hospital for Children (one of the Indiana University hospitals). The cases have so many points in common and are so instructive that it seems they should be reported. Each patient was bitten by a dog which was proved rabid by the finding of typical Negri bodies by the laboratory of the Indiana State Board of Health. Both received first aid treatment, in one case at least nitric acid being used. Both were boys, and both were bitten through the upper lip—a very dangerous place. Both received the full fourteen dose prophylactic treatment without interruption. The virus used was that of a firm which is very careful and conscientious in the preparation of its product, which is a modified Harris preparation of the living virus. Virus from the same firm was used in the two cases. In one case, the period elapsing before treatment was begun was three days; in the other case, it was four days. Both patients were brought to the Riley hospital after symptoms were well advanced and both died in less than twelve hours after being admitted. Both had complete autopsies and both had Negri bodies demonstrated in the brain. In one there were four positive animal inoculations; in the other there were no animal inoculations as the diagnosis was absolutely positive without it.

The point to be emphasized is the extreme danger of a bite on the lip. It has long been known that face bites are particularly dangerous, especially those of the tongue or lip. Patients so mutilated should begin treatment immediately and not wait three or four days for the examination of the brain of the animal. Furthermore, there is reason to believe that fourteen treatments are not enough under such conditions. At least twenty-one are recommended. Cauterization of the wound with nitric acid failed in one of these cases but it was not done until "several hours after the injury." The incubation period in one case was eighteen days, and in the other, ninety-two days. In the latter case, the symptoms were probably delayed by the treatment, and as the child did not suffer as horribly as the classic picture of rabies would lead one to expect, we may believe that the treatment was not entirely a failure, even though the child did die. It is not unlikely, of course, that the textbook picture of rabies is that of the dramatic and spectacular cases which leave a tremendous impression on those who observe them, and that the mild cases are really just as typical of the disease. The first case described was so mild that several experienced physicians refused to believe that it was rabies until the evidence of Negri bodies and positive animal inoculation was brought before them. The latter case was one of the wildest of demonstrations imaginable—a nerve racking spectacle—and left absolutely no doubt as to diagnosis.

It is often said that human beings and other animals which do not commonly protect themselves with their teeth, or bite when angry, will not attempt to bite their attendants when they have rabies. Patient 2 repeatedly tried to bite those about him, and, as a matter of fact, did succeed in biting two nurses—one on the finger and the other on the back of the hand.

REPORT OF CASES

CASE 1.—K. B., a boy, aged 6 years, was bitten through the upper lip, Jan. 24, 1927, by a dog with clinical symptoms of rabies, later proved positive by brain examination in the Indiana State Board of Health Laboratory. The wound was cauterized by the family physician a few hours later, nitric acid being used. The wound was left open and healed promptly by granulation.

Pasteur treatment was begun by the same physician, January 27 (three days after the injury), and was continued without interruption until the full fourteen doses were given. The boy had rather marked reactions to the treatments, but there were no other bad effects. The boy was seen, February 19, just ten days after the last treatment and was apparently well.

April 26 (ninety-two days after the injury), the first symptom appeared in that the boy complained of being unable to swallow. April 28, he was taken to the family physician and a tentative diagnosis of rabies was made. At this time the boy was "nervous," twitching frequently, unable to swallow properly, and showing some rigidity. He had pain in the head and was very apprehensive, though he did not know of the danger that he was in.

He was admitted to the Riley Hospital the following day, April 29, at 2 p. m. At this time he was thrashing about as he lay on the bed, but gave little evidence of being in pain or discomfort. The respiration was rapid, the pulse 120, and the temperature 105 F. The healed dog bite scar was plainly seen on the left upper lip, and thick dry saliva was about the mouth. The eyes were bulging, with the pupils dilated but equal, and responsive to light. There was no perceptible rigidity of the muscles of the neck. Pathologic reflexes were not elicited. He complained of pain in the head, neck and right side. He was very excited and afraid, and would try to hide under the bed clothing; he escaped from the crib while the nurses were not watching and fell violently to the floor, probably because of paralysis of the legs; he wanted his father to kill the nurses and physicians. There was slight rigidity in the legs at this time, but no convulsions. Evidences of hallucinations and delusions were beginning to be apparent.

At 8 p. m. he was quite delirious but did not need restraint. There were no convulsions, and at this time no evidence of paralysis in the limbs was noted by the staff man. He could not swallow and, as a result, saliva drooled from the lips. Kernig's sign was negative, and the Babinski reflex was positive; abdominal and cremasteric reflexes were present and the temperature was rising.

The symptoms continued. The temperature rose to 107 F.; respiratory distress became more marked; he became extremly cyanotic and died at 1:15 a. m., April 30.

The spinal fluid was under a pressure of 250 mm. It contained red blood cells to the amount of 2,000 per cubic centimeter, but this was probably due to trauma. The white blood count was 16,800, of which 86 per cent were polymorphonuclear leukocytes, and 9 per cent were lymphocytes.

At autopsy, the lungs were soggy and showed a very early bronchopneumonia probably due to the impaired respiration. The liver showed definite evidence of fatty change. There were many small petechial hemorrhages in the gastric mucosa, but otherwise the viscera were perfectly normal in appearance. The dura was congested, and there was an extreme congestion of the pia-arachnoidal vessels. The brain substance was soft and wet, and in it were a few petechial hemorrhages. There was no exudate on the brain. Perfectly typical Negri bodies were found in rather large numbers and in all stages of development.

As several members of the staff were still unconvinced that this was a case of rabies, four rabbits were inoculated subdurally with the brain substance. All died in from twelve to sixteen days of typical rabies. The fact that they died so promptly indicates that the virus was of high virulence.

CASE 2.—L. L., a youth, aged 17, was bitten through the right upper lip, June 19, 1928, by a dog with clinical symptoms of rabies. The head was subsequently examined by the laboratory of the Indiana State Board of Health and typical Negri bodies were found. Some prophylactic first aid treatment was administered, but the exact nature of it could not be ascertained.

Pasteur treatment was begun by the Pasteur Laboratory of the Indiana State Board of Health, June 23 (four days after the injury). The full fourteen treatments were given without interruption. During this period the patient seemed well, worked every day, and frequently went swimming. July 7 (eighteen days after the bite, and the day after treatment was ended), he began complaining of an intense headache, accompanied by vomiting, at first projectile. He was extremely irritable and "nervous"; photophobia was present and there was inability to swallow—he could not drink from a glass but was not afraid of water. At this time he had had a very poor appetite for several days and had eaten little.

He was admitted to Riley Hospital, July 10, at 5 p. m. At this time, he was jerky and apparently greatly excited. There was twitching, marked tongue tremor, and slight exophthalmos. The pupils were large and sluggish and the lips were dry. He was markedly hyperirritable; the reflexes were much increased, and he could swallow only with the greatest difficulty. The temperature was 104.6 F.; the pulse was 86, and there was some respiratory distress. The symptoms rapidly progressed, and the patient came to present an indescribable picture of horror and distress in spite of every effort to quiet him.

At 8:30 p. m. there were very marked mental symptoms, delirium and delusions.

At 9, the temperature was 105.6. There were terrible clonic convulsions with marked opisthotonos. He gasped for breath and made violent attempts at vomiting. The white blood cells at this time numbered 14,000, of which 78 per cent were polymorphonuclear leukocytes.

At 9:15 he had hallucinations and obsessions of fear which had been marked for the last half hour. He was very apprehensive of everything.

At 10 he was very restless in spite of the fact that three-fourths grain (48 mg.) of morphine had been administered in the past few hours. A restraint jacket was placed on him. He bit two nurses, and was a difficult patient to take care of.

At 12:30 a. m., chloral hydrate was administered by rectum. There was fecal vomiting. There was marked dyspnea. Some chloroform was administered but with little result.

At 4:20 a. m., July 11, death occurred as a result of respiratory failure.

The spinal fluid was clear, and under a pressure of 190 mm.; there were 36 cells per cubic centimeter, chiefly polymorphonuclear. The Pandy reaction was slightly positive; tests for sugar were negative, and the Wassermann reaction was negative. The colloidal gold curve was 0000011321. The blood Wassermann reaction and the complement fixation test for tuberculosis were negative.

During the slightly less than twelve hours that the patient was in the hospital, he was given three-fourths grain (48 mg.) of morphine, 40 grains (2.6 Gm.) of chloral hydrate, and some chloroform in the attempt to check the severity of the symptoms, but with little or no success.

Postmortem examination did not reveal any significant pathologic condition except a moderate congestion of the meninges. Negri bodies were found in great numbers in the brain. Animal inoculation was not done, as there was no doubt whatever about the diagnosis.

SUMMARY

1. Pasteur treatment should be begun immediately in the case of lip bites, and should consist of at least twenty-one treatments. Cauterization with nitric acid should be done at once.

2. Rabid human beings will occasionally try to bite those about them, and should be handled with great care.

3. Both cauterization of the new wound and rather prompt Pasteur treatment failed to protect these patients.

4. The only significant pathologic observations were congestion of the meninges, and the presence of Negri bodies by microscopic examination.

Clinical Notes, Suggestions and New Instruments

RECOVERY FROM GLYCOSURIA FOLLOWING CHOLECYSTECTOMY

EDWARD C. EMERSON, M.D., ST. PAUL

Diabetes mellitus is usually diagnosed by finding sugar in the urine with an elevation of the blood sugar content to a point above 140 mg. per hundred cubic centimeters, in addition to clinical symptoms of the disease.

In the case reported here there were typical symptoms of diabetes mellitus with positive laboratory observations which completely disappeared following the removal of a chronically infected gallbladder.

REPORT OF CASE

History.—Mrs. K. T., aged 54, of French-German birth, seen, March 5, 1928, complained chiefly of pain in the right leg and foot, weakness and loss of weight.

In the summer of 1927 the patient had had an attack of pain in the right shoulder and arm lasting five or six months. Then the pain changed to the right hip and radiated down to the knee and the leg. At the time of examination the pain was almost constant in the right lower leg and the foot. At times, the patient could not step on the foot. She felt weak and tired most of the time. Her appetite was good, and thirst had increased. Her average weight was 195 pounds (88.5 Kg.) three months before examination; at the time of examination, it was 177 pounds (78 Kg.).

The patient had had gallbladder colic three years before with two attacks since, lasting several hours and accompanied by nausea and vomiting. Following this, the patient went on a low fat diet. An appendectomy was performed in 1910. The patient had had pneumonia and influenza.

The patient's father was 88 years old, living and well; her mother was 77, and had diabetes. She had five brothers, living and well, and four living sisters, of whom two had diabetes; three other sisters had died in infancy. The patient's husband, aged 54, and her twelve children were living and well.

Physical Examination.—The patient was obese, with a pendulous abdomen which was very tender in the right upper quadrant. There was pain on motion of the right foot, which was normal otherwise. The temperature was 98.6 F., and the pulse rate was 90.

Laboratory Observations.—The specific gravity of the urine was 1.010; there was no albumin, but sugar, 4 per cent, and a few hyaline casts were present. Chemical examination of the

blood showed: hemoglobin, 85 per cent; blood urea, 25 mg., and blood sugar, 250 mg. The reaction to the Graham-Cole test was positive; no shadow was cast on the film.

Treatment and Course.—Removal of the gallbladder was advised. An operation was done at St. John's Hospital, March 13, 1928, under local anesthesia and gas. A thick walled gallbladder was found. There were enlarged lymph glands along the cystic duct and at the entrance of the pancreatic duct. The pancreas was nodular. The liver was somewhat enlarged, but normal in appearance except for the area of hepatitis surrounding the gallbladder. The gallbladder measured 9 cm. in length, and was 3 cm. wide at the fundus. It contained thick, stringy, black bile, and about one-half teaspoonful of gravel. The mucosa was deeply stained, and was entirely fibrous in character.

A pathologic diagnosis of chronic cholecystitis with gravel formation was made.

Convalescence was rapid and uneventful. Insulin was given for three days with intravenous injections of dextrose and hypodermoclysis of 5 per cent dextrose solution. The patient left the hospital on the fifteenth day on a diabetic diet. A careful daily check for sugar was kept during the first postoperative month, but none was found. The diet was increased, and three months later, the patient went on a general diet though she was cautioned against it, eating considerable sweets. Examination did not show any sugar. The blood sugar was 120 mg. per hundred cubic centimeters. The symptoms of neuritis disappeared.

CONCLUSION

1. Glycosuria in a patient susceptible to diabetes (family trait) may be easily induced by pancreatitis secondary to cholecystitis.
2. Removal of foci of infection to the pancreas may restore complete physiologic function.

Farmer's and Merchant's Bank Building.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

ETHYLHYDROCUPREINE

Ethylhydrocupreine is a synthetic derivative of cupreine, $C_{19}H_{22}O_2N_2$, an alkaloid occurring together with quinine in the bark of *Remijia pedunculata*. It is closely related to quinine, differing from the latter in containing two more hydrogen atoms and an ethoxy group in place of a methoxy group. Ethylhydrocupreine has the antimalarial and anesthetic action of quinine. Toxic symptoms, however, such as tinnitus, deafness, amblyopia or amaurosis (retinitis) are more liable to occur than with quinine. While these are generally transient, retinitis may result in permanent impairment of vision (in one case, amaurosis resulted from the administration of two 0.25 Gm. doses of the hydrochloride). This demands caution in the administration of the drug. Ethylhydrocupreine has a specific bactericidal effect on the pneumococcus in vitro and it exerts a protective and curative action in animals experimentally infected with virulent strains of pneumococci. Clinical investigation indicates that the drug may be of value in the treatment of lobar pneumonia, if a sufficient amount can be administered sufficiently early without untoward effect. To avoid such effect, it is proposed to secure slow absorption through the administration of the free base by mouth. The hydrochloride may be administered intramuscularly, but it is liable to be irritant. Intravenous administration seems to be contraindicated. The drug has a definite value in the treatment of pneumococcic infections of the eye (ulcus corneae serpens).

OPTOCHIN BASE. — Optochin. — Ethylhydrocupreine.—$C_{19}H_{22}N_2OH.OC_2H_5$.

Actions and Uses.—See preceding article, Ethylhydrocupreine.

Dosage.—Optochin base is administered orally in doses of 0.25 Gm. (4 grains) every five hours for three days, each dose being accompanied by 150 cc. (5 fluidounces) of milk to retard absorption. If auditory or visual disturbances develop, the use of the drug is to be suspended. For children a proportionate dose is administered.

Manufactured by Merck & Co., Inc., Rahway, N. J., under U. S. patent 1,062,203 (May 20, 1913; expires 1930) by license of the Chemical Foundation, Inc. U. S. trademark 99822.

Tablets Optochin Base, 2 grains.

Optochin base is a white or faintly yellowish amorphous odorless powder, having a bitter taste. It is almost insoluble in water, soluble in alcohol, ether, chloroform, and in diluted mineral acids; slightly soluble in petroleum benzin.

Dissolve about 0.1 Gm. of optochin base in 20 cc. of water by the aid of a few drops of diluted sulphuric acid; add 1 cc. of bromine water and make the solution alkaline with ammonia water: a green color is produced. Dissolve about 0.5 Gm. of optochin base in water by means of a few drops of diluted sulphuric acid; render the solution alkaline by addition of sodium hydroxide solution and boil the mixture: no odor of ammonia develops. Dissolve about 0.1 Gm. of optochin base in 20 cc. of water by the aid of a few drops of diluted sulphuric acid: a blue, fluorescent solution is produced. Add 0.3 cc. of tenth-normal potassium permanganate solution to this solution: the violet color persists for at least one minute (*quinine and some other impurities*). Dissolve about 0.01 Gm. of optochin base in 0.2 cc. of sulphuric acid, U. S. P.: not more than a slightly greenish-yellow color is produced (*readily carbonizable organic impurities*).

Incinerate from 0.8 to 1 Gm. of optochin base, weighed accurately; not more than 0.1 per cent of ash remains.

OPTOCHIN HYDROCHLORIDE. — $C_{19}H_{22}N_2OH.O.C_2H_5HCl$.—The hydrochloride of ethylhydrocupreine.

Actions and Uses.—See preceding article, Ethylhydrocupreine.

Dosage.—For application to the eye and instillation into the conjunctival sac, a freshly prepared 1 or 2 per cent solution is used. It is not recommended for oral administration.

Manufactured by Merck & Co., Inc., Rahway, N. J., under U. S. patent 1,062,203 (May 20, 1913; expires 1930) by license of the Chemical Foundation, Inc. U. S. trademark 99822.

Optochin hydrochloride is a white or faintly yellowish-white crystalline, odorless powder, having a very bitter taste. It is soluble in 2 parts of warm water, forming a neutral or faintly alkaline solution; soluble in 5 parts of alcohol; very soluble in chloroform; almost insoluble in ether or petroleum benzin.

To 5 cc. of an aqueous solution of optochin hydrochloride (1 in 10) add 1 cc. of silver nitrate solution: a white, curdy precipitate is formed which is insoluble in nitric acid. To 5 cc. of an aqueous solution of optochin hydrochloride (1 in 10) add an excess of sodium hydroxide solution: a white curdy precipitate is produced (*distinction from cupreine, which is soluble in an excess of sodium hydroxide*). Dissolve about 0.1 Gm. optochin hydrochloride in 20 cc. of water and add 0.3 cc. tenth-normal potassium permanganate: the violet color persists for at least 1 minute (*quinine salts and some other impurities*). Dissolve about 0.01 Gm. of optochin hydrochloride in 0.2 cc. of sulphuric acid, U. S. P.: not more than a slightly greenish-yellow color is produced (*readily carbonizable organic impurities*).

Accurately weigh from 0.5 to 0.8 Gm. of optochin hydrochloride; dissolve it in about 20 cc. of water in a separator made slightly alkaline with ammonia water and extract the mixture successively with 15, 10 and 5 cc. of chloroform; allow the extractions to evaporate spontaneously; treat the residue with 2 cc. of alcohol; allow the alcohol to evaporate and dry the residue to constant weight at 100 C.: the weight of the residue (ethyl-hydrocupreine) corresponds to not less than 90 per cent of the weight of material taken for the assay.

PROTARGENTUM-SQUIBB (See New and Nonofficial Remedies, 1928, p. 397).

The following dosage form has been accepted:

Tablets Protargentum-Squibb, 4.6 grains.

SOLARGENTUM-SQUIBB (See New and Nonofficial Remedies, 1928, p. 398).

The following dosage form has been accepted:

Tablets Solargentum-Squibb, 4.6 grains.

EPHEDRINE HYDROCHLORIDE-ABBOTT (See New and Nonofficial Remedies, 1928, p. 176).

The following dosage form has been accepted:

Capsules Ephedrine Hydrochloride-Abbott, ¾ grain.

ANTIMENINGOCOCCUS SERUM (See New and Nonofficial Remedies, 1928, p. 359).

Eli Lilly & Co., Indianapolis.

Antimeningococcus Serum Concentrated, Lilly.—Refined and concentrated by the Banzhaf method. Marketed in packages of one 1 cc. double ended vial with apparatus for intraspinal injection.

ANTISTREPTOCOCCUS SERUM (See New and Nonofficial Remedies, 1928, p. 361).

Eli Lilly & Co., Indianapolis.

Antistreptococcic Serum, Purified and Concentrated (Lilly).—A polyvalent serum prepared by immunizing horses against virulent strains of the various streptococcus groups. Marketed in packages of one 10 cc. syringe and in packages of one 10 cc. vial.

EPHEDRINE SULPHATE-P. D. & CO. (See New and Nonofficial Remedies, 1928, p. 178).

The following dosage form has been accepted:

Capsules Ephedrine Sulphate-P. D. & Co., 0.025 Gm. (⅜ grain).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, NOVEMBER 24, 1928

EPINEPHRINE AND CARBOHYDRATE METABOLISM

Carbohydrates may be said to be the backbone of our nutrition, for somewhat more than half the energy of the national dietary is derived from the sugars and starches. When it is realized that the money cost of these carbohydrate calories is only about 10 per cent of the total expenditure for food, the preeminent place of this group as a source of cheap nutriment becomes at once apparent. The carbohydrates have their appeal to the physiologist and to the clinician as well. They are the preferential material oxidized by the organism during muscular activity; and the maintenance of a normal blood sugar level is a striking example of physiologic constancy. However, one of the most profound and far reaching metabolic disturbances known is a typical case of diabetes. Interest will be excited, then, by any observation that promises to have a bearing on the physiologic chemistry of the carbohydrates.

Although insulin is at present usually associated with carbohydrate metabolism, twenty years before this hormone was prepared in a form suited to practical use it was known that epinephrine injected into an animal causes a disturbance of normal sugar metabolism with hyperglycemia and glycosuria as the most obvious results. Textbooks state that one of the prominent effects of epinephrine consists of the hydrolysis of liver glycogen to dextrose with a resultant augmented blood sugar level. With the extensive practical use of insulin and the further laboratory studies, repeated instances occurred of an apparent antagonistic effect between these two hormones. Whereas epinephrine increases blood sugar, insulin decreases it. Moreover, since hypoglycemia induced by insulin has been found to result in an increased discharge of epinephrine, some of the observed effects of insulin in the organism have been attributed to the reciprocal action of epinephrine.

This generally accepted view of the physiologic action of epinephrine and insulin has recently been challenged by the Coris.[1] They point out that most of the previous studies have only partially accounted for the carbohydrate of the body and consequently misleading results were obtained. Continuing with an experimental method which they have employed extensively in former research, these investigators have attempted to arrive at a complete carbohydrate balance in the rat by determining the amount of sugar absorbed if sugar was given, the liver and body glycogen, the sugar of the blood and other fluids in the body and, finally, the carbohydrate oxidized during the experimental period. These studies were carried out on fasting animals, on rats in the postabsorptive state and also during the active absorption of sugar from the intestine after subcutaneous injections of quantities of epinephrine which they believe to fall within the physiologic range.

The results show that epinephrine promotes the decomposition of body glycogen with the production of lactic acid, which is carried by the blood to the liver and there is changed to glycogen. At the same time this hormone decreases the utilization of dextrose in the tissues so that, without increased glycogenolysis in the liver, a hyperglycemia results which, during active absorption of sugar from the intestine, may be so intense that glycosuria occurs. Liver glycogen is actually increased after the administration of epinephrine, instead of decreased, as was heretofore believed; here is the physiologic paradox of a high blood sugar accompanying an increased formation of hepatic glycogen. Liver glycogen remains the only direct source of blood sugar, but this study has shown that, under the influence of epinephrine, muscle glycogen becomes an indirect source of blood sugar if the liver is present and if lactic acid can escape from the muscles.

Up to now, the authors point out, the liver has been considered the site of the antagonistic action of epinephrine and insulin. On the contrary, the locus of the primary opposing effects of the two hormones is extrahepatic, for insulin increases utilization of sugar in the tissues and epinephrine decreases it. The changes in liver glycogen under the influence of insulin and epinephrine on which attention has previously been focused are secondary. During the absorption of dextrose in normal animals, insulin decreases liver glycogen while epinephrine increases it. These more obvious changes, in the absence of additional links in the chain of evidence, have apparently proved misleading. The liver still remains in the key position, for it has been shown[2] that, in hepatectomized animals, muscle glycogen is not available as a source of blood sugar. The physiology of the carbohydrate in the body has thus developed into an interesting story much of which has been given a rational basis by the most recent investigations of the Coris.

1. Cori, C. F., and Cori, G. T.: J. Biol. Chem. **79:** 309, 321, 343, 1928.
2. Mann, F. C., and Magath, T. B.: Am. J. Physiol. **72:** 629 (May) 1925.

THE GROWTH OF DIABETIC CHILDREN

Among the best testimonials for the usefulness of insulin as a potent agency in promoting human well being are the striking records of its value in the management of diabetes mellitus in children. Although the use of the pancreatic hormone has revolutionized the treatment of diabetes in patients of all ages, the contrasts between the older and the newer results in childhood are particularly striking and eminently gratifying. The fact that a large hospital for infants and children can report that there has not been a single death among the diabetic patients it has treated during the last five years indicates the improvement in prognosis among juvenile sufferers from a malady that formerly offered a most discouraging outlook. As Spencer [1] has recently remarked, prior to the introduction of insulin, diabetes mellitus in children ran a rapidly progressive course, often proving fatal within six months after the symptoms had become sufficient to lead to a correct diagnosis. With rigid dietetic treatment and intelligent care, it was occasionally possible to prolong the life of the older children for two or three years. However, the diet on which life was sustained was inadequate for normal growth and development in these children. Consequently, the typical diabetic child on dietetic treatment in the preinsulin days was much undernourished and stunted in growth, if the mildness of his disease permitted his survival.

The end-results in the treatment of diabetes mellitus in children were reviewed not long ago by Joslin.[2] The effects that he has recorded were secured under the favorable conditions developed by a well trained personnel and expert clinical advice. The optimistic outlook is, however, warranted by the reports accumulating from other places. For example, Boyd [3] has recorded her observations on ninety-five children under 15 years of age treated at the Hospital for Sick Children in Toronto. Most of these had severe forms of diabetes, yet growth and development followed treatment with insulin. Records from the department of pediatrics in the Harvard Medical School are equally good.[1]

In commenting on the Boston results, Spencer [1] points out that, despite our ability to supply the immediate metabolic requirements of diabetic children, the therapy should not be accepted as a completely achieved ideal form of treatment for children, no matter how great may be its advantages over methods previously in use, unless it restores their normal rate of growth and development. He recalls the suggestion that diabetes may not be a disease of the pancreas alone but may also involve some of the other glands of internal secretion and consequently affect the growth and development of children even before definite manifestations of a disturbed carbohydrate metabolism become evident. Spencer's measurements indicate that the typical diabetic child at the time of onset of the symptoms of the disease is tall and slender (overheight for age and underweight for both age and height). Ten diabetic children under observation for an average period of 2.2 years following the onset of their disease, while receiving treatment with insulin, showed a rate of gain in height and in weight of 24 per cent below the normal rate. This decrease in the rate of growth in height after the onset of diabetes Spencer regards as all the more striking since it has been shown that, prior to developing the disease, these children had grown in height more than the average normal child.

Whether this is a characteristic of the diabetic disturbance rather than a defect in its management remains to be learned. Some evidence has been forthcoming to indicate that pancreatic regeneration may occur.[3] The most important factor in prognosis today undoubtedly is the degree of cooperation obtainable in maintaining control of the objectionable symptoms. Hence it seems worth while to recall Spencer's reminder that the failure of diabetic children to grow at the normal rate, even when treated with insulin, may be due in part to the great difficulty experienced in obtaining the desired amount of intelligent care and helpful cooperation among the type of patients generally attending the clinic of the outpatient department. Spencer adds that the results obtained in the treatment of persons with diabetes are greatly influenced by the ability of those having the immediate daily care of the patient at home to follow the instructions of the physician and to use their own intelligent initiative as they gain familiarity with the principles involved in the modern treatment of patients with diabetes.

1. Spencer, Harvey: Diabetes Mellitus in Children, Am. J. Dis. Child. **36**: 502 (Sept.) 1928.
2. Joslin, E. P.: End-Results in the Treatment of Diabetes Mellitus in Children, J. A. M. A. **88**: 28 (Jan. 1) 1927.
3. Boyd, Gladys: Course and Prognosis of Diabetes in Children, Am. J. Dis. Child. **34**: 698 (Oct.) 1927.

PHYSIOLOGIC MALADJUSTMENTS OF THE NEW-BORN

There are more than scanty evidences that the transition from an intra-uterine to an extra-uterine existence is not as uneventful for the welfare and development of the infant as the untutored observer might assume. Adjustments of varied sorts are necessitated. The respiratory functions are brought into play in an independent way. Organs associated with the alimentary processes are suddenly confronted for the first time with digestive, absorptive and excretory tasks and are accordingly awakened from their prepartum lethargy. Renal activity is initiated. Temperature regulation independent of the maternal organism becomes a persistent necessity. It would be surprising, indeed, if these and other physiologic performances were always started with perfection at the moment of birth. For the most part the maladjustments are temporary, when they occur; and the physical and chemical processes soon acquire the stride of regularity and biologic adaptation called normal. The exceptions are illumi-

nating, not only because they may cause concern for the proper development of the infant, but also because they indicate the possible difficulties of readjustment and functional perfection at the beginning of life. The early cessation of growth and even occasional losses of weight after birth are perhaps most familiar. There are indications that these are not inherently necessary but can be averted through skilful feeding practices. A natural "tendency" toward icterus is said to exist in the new-born, their blood containing much more bile pigment than later. It is apparently of hemolytic origin.[1] This nonobstructive type of icterus neonatorum, which is symptomless and does not call for treatment, occurs in a large proportion of all infants.

The deposits of uric acid and urates frequently observed in the kidneys of children dying from other causes within the first two weeks of life also indicate an early incomplete adjustment of the body to the needs of purine metabolism. Various explanations have been proposed. Wells [1] has suggested that possibly the uric acid infarcts of infants are the result of the great destruction of nucleoproteins occasioned by the change of the nucleated fetal red corpuscles to the non-nucleated adult form, or from a destruction of leukocytes that is said to take place at the time of birth. Recently attention has been directed to the occasional persistent occurrence of occult blood in the stools of the new-born.[2] This does not refer to the meconium, long known to contain both macroscopic and occult blood, but to the feces of a subsequent period. It has been suggested that, since the affected infants usually appear as normal as those who do not show blood in the stools, the occult intestinal bleeding in the new-born might be considered physiologic, and the difference between melena and occult hemorrhage only a quantitative one. The usual sources for occult blood might be extraneous to the gastro-enteric tract and consist of maternal blood swallowed during labor, blood from hemorrhage in the nasopharynx or the genito-urinary tract, or bruised maternal nipples. Enteric bleeding is, of course, possible in the infant as in the adult; but Bonar's [2] studies of more than 1,500 stools of 109 new-born infants have led him to the conclusion that occult blood is found too frequently in the stools of the new-born to ascribe its cause to the usual sources. Nor should it be considered physiologic. Certain observations by Bonar seem to warrant the assumption that the bleeding is due to an intense hyperemia set up in the upper portion of the small intestine by the first products of digestion, by the primary bacterial invasion, or by both.

Bonar reminds us that hyperemia occurring at a time when it is known that there is a prolongation of the bleeding and coagulation times of the blood would favor the loss of blood from the involved area of the bowel, perhaps by rupture of the overdistended smaller vessels or by diapedesis. A clinical manifestation of the irritative processes set up in the gastro-intestinal tract is seen in the transitional stools appearing at the period under discussion. The so-called initial diarrhea of the new-born he regards as probable evidence of the continuation of the irritation of the bowel and is seen much more commonly than one would assume from reading the literature. It is too often ignored, he concludes, and more attention should be paid to it.

1. Wells, H. G.: Chemical Pathology, Philadelphia, W. B. Saunders Company, 1925, p. 549.
2. Ratnoff, H. L.: Jahrb. f. Kinderh. **101:** 187, 1923. Snapper and van Creveld, S.: Nederl. Tijdschr. v. Geneesk. **71:** 401 (July 23) 1927. Raisz: Zentralbl. f. Gynäk. **48:** 1550 (July 12) 1924. Bonar, B. E.: Blood in the Stools of the New-Born, Am. J. Dis. Child. **36:** 725 (Oct.) 1928.

THE CALCIUM OF CHEESE

A student of nutrition will find little difficulty in securing illustrations of the unwisdom of extreme generalizations in his science. The menace of the untutored person who assumes the rôle of a nutritional adviser often lies in his readiness, sometimes well intentioned, to make prescriptions of diet on "general principles." Thus one might read, early in the development of the modern vitamin hypothesis, that the newly recognized food factors are thermolabile and that accordingly "heat destroys all vitamins." Such unguarded statements threw consternation into the camp of the users of all sorts of fruits and vegetables that are conventionally preserved through the heat processes of canning. The only serious warrant for this generalization is the fact that the antiscorbutic property of foods, in particular, is peculiarly sensitive to heat in the presence of air and in an alkaline medium. The thermolability of other vitamins is admittedly far less marked.

The early offhand pronouncements, however, made a rule of the exception. Again, the wide differences in the iodine content of the same species of food plant or animal in different parts of our own country indicates the necessity of accurate information before food prescriptions are formulated from the standpoint of goiter prevention. Of late, much interest has centered in the adequate inclusion of calcium in the diet. This has been stimulated by Sherman's evidence that not a small number of American dietaries appear to include the element in subminimal amounts. This is particularly true if we adopt the standard of 0.68 Gm. of calcium for an adult daily, and far more for the growing child. Milk is properly promoted as the most effective and abundant source of calcium; and milk products, notably cheese, have consequently also been lauded as acceptable calcium-yielding foods.

The approximate content of cheese in calcium is often quoted as 1 per cent—a noteworthy inclusion. The investigations of Blunt and Summer [1] at the University of Chicago, however, furnish the basis for discriminating advice with respect to the use of cheese

1. Blunt, K., and Summer, E.: The Calcium of Cheese, J. Home Economics **20:** 587 (Aug.) 1928.

as a source of calcium. It is well known that there are two types of cheese, "sour milk" cheeses, such as cottage cheese, and rennet cheeses, which include most others. The chemical reactions in the coagulation of milk by acid and by rennet are quite different. Analyses made by the Chicago investigators have correspondingly shown that the calcium content is not only higher absolutely in the rennet cheeses but higher in proportion to the protein. Swiss and cheddar types, for example, have fourteen and nine times as much calcium, respectively, as has cottage cheese. In the words of Blunt and Summer, the latter, therefore, unlike hard rennet cheese, must be regarded as a poor source of calcium, not a rich one, as usually considered.

Current Comment

CALCULI IN UROLOGIC CONDITIONS

A discussion on urinary calculi, particularly with reference to their occurrence and significance in childhood,[1] formed part of the program of the Section on Urology at the Minneapolis session of the American Medical Association last June. One noteworthy conclusion, based on rapidly accumulating experience, was that there is no essential difference between the urologic problems encountered in children and in adults. Calculi occur in practically the same ratio at the various ages considered; consequently, it was argued, children should be subjected to the same thorough urologic examinations that are accorded to their elders. Strangely enough, although all of the authors outlined in great detail the desirable diagnostic procedures and remedial measures with respect to urinary lithiasis, the variable chemical character of the calculi encountered does not seem to have elicited consideration. Calculi are always liable to recur. Perhaps one reason for the difficulties encountered in the avoidance of nephrolithiasis lies in the seeming widespread indifference as to the chemistry of the concretions. From the standpoint of genesis, solubility and form, deposits or stones consisting of such unlike materials as uric acid and urates, oxalates, phosphates of the alkali earths or cystine must present at least somewhat variant problems. In some cases the use of alkalis is clearly contraindicated; in others it ought to favor the patient's welfare. The mere admonition, so commonly given, to "drink ample quantities of water" falls short of the best that clinical advice should represent. There is urgent need of new and more elaborate statistics on the exact character of the calculi that are brought to the consideration of physicians in different places. It would probably be difficult at the present time to designate the most common type of calculus. Records from different regions accord the supremacy now to calcium oxalate, now to the calcareous concretions, now to the urate forms. What is needed today is less guesswork and more effective interest in urinary calculi as chemical entities. The discovery that they may cause pain and obstruct the urinary passages is only a part of the entire story that the clinician needs to appreciate.

1. Thomas, B. A., and Birdsall, J. C.: Urologic Conditions Encountered in Children, J. A. M. A. **91**: 1428 (Nov. 10) 1928. Smith, C. K.: Urinary Calculi in Children, ibid. **91**: 1431 (Nov. 10) 1928.

THE VALUE OF THE OPHTHALMOSCOPE IN MEDICAL DIAGNOSIS

The development of internal medicine has been characterized by an increasing tendency of the clinician to enlist the aid of specialized technics perfected in other departments of medicine. Thus, the devices and procedures of the biochemist, the histologic microscopist and, in a beginning way, the biophysicist are being requisitioned freely to assist in solving the manifold problems of diagnosis. Percussion, auscultation and clinical thermometry have long since been supplemented by a large number of highly developed methods for the examination of patients. A recent writer [1] has defended the thesis that sclerosis of the arterioles of the kidney and brain cannot exist in the absence of a similar condition of the retinal arteries and that normal retinal vessels definitely exclude interstitial nephritis of the sclerotic type (small contracted kidney). If he is correct in the conclusion that changes in the fundus oculi can be found in general arteriosclerosis and in interstitial nephritis in their incipience and that such changes are synchronous with corresponding changes in the kidney and other organs, the use of the ophthalmoscope in clinical diagnosis ought to be considerably extended. In the study of a series of persons for whom blood pressure, blood chemistry and kidney function have been considered simultaneously with the appearance of the fundi, Agatston [1] has reached the conviction that the height of the blood pressure is generally in proportion to the changes in the retinal arteries. High nitrogen content of the blood is also usually in proportion to the changes in these vessels. In cases of advanced retinal arteriosclerosis, the urine is never normal; in incipient and moderate cases, it is frequently normal. In the presence of normal retinal arteries a high blood pressure generally has a functional cause and is usually associated with a normal blood chemistry and kidney function. Obviously, nephritis or the so-called nephrosis attending focal infections or infectious diseases may exist without arterial disease. In such cases the retinal vessels will give a normal picture. Peripheral arteriosclerosis, such as is found in old people, is not necessarily associated with changes in the retina. Agatston points out that patients with this condition may have a normal blood pressure and normal kidney function, and longevity is not affected. Inspection of the eye gives a helpful clue. The pictures in essential hypertension may not reveal any sclerotic changes in the retinal arteries. It is doubtful whether the microscope would reveal retinal changes as successfully as does the ophthalmoscope in the hands of trained observers. In any event, incipient changes in the retinal vessels should be sought for with care. One may well agree with Agatston as to the importance of a close association of the internist and the ophthalmologist. A careful ophthalmoscopic report is a valuable aid in the diagnosis and prognosis of internal disease.

1. Agatston, S. A.: Changes in the Fundus Oculi as a Definite Index to Arterial Disease, Arch. Int. Med. **42**: 455 (Oct.) 1928.

Association News

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock in the morning, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of November 26 to 31 will be as follows:

November 26. "First Aid to Medical Terms," by Dr. R. G. Leland.
November 27. "Methods for Determining the Curative Value of a New Drug," by Mr. Cecil Bean.
November 28. "X-Rays in Medicine," by Mr. H. J. Holmquest.
November 29. Thanksgiving; no broadcast.
November 30. "Cold Blow the Winds," by Dr. John M. Dodson.
December 1. "The Original Daily Dozen" and "The First American Baby Show," by Dr. R. G. Leland.

Evening Health Hints from Hygeia at 8 o'Clock, Central Standard Time

November 26. Getting the Baby to Sleep.
November 27. The National Mania.
November 28. The Hazards of the Golf Professional.
November 29. Thanksgiving; no broadcast.
November 30. Garden Products and Health.
December 1. Health Maxims.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Mental Hygiene Society Organized.—The Colorado Society for Mental Hygiene was recently organized for the following purposes: (1) to disseminate information concerning mental hygiene, to arrange for courses of instruction for suitable groups and to issue periodicals; (2) to assist in the establishment of mental hygiene clinics in various communities at their request; (3) to encourage research and to aid in collecting information; (4) to maintain a library relating to this field; (5) to supply information concerning the treatment of mental patients. It is the plan of the society to have a prominent psychiatrist give a public address each year. Dr. Esther Loring Richards, associate professor of psychiatry, Johns Hopkins University School of Medicine, Baltimore, has just concluded a series of lectures. Among the officers of the society are Dr. Howell T. Pershing, Denver, honorary president, Dr. James J. Waring, Denver, president, and Dr. George A. Moleen, Denver, and Charles C. Mierow, LL.D., vice presidents.

DISTRICT OF COLUMBIA

Cooperation in Immunization.—The Medical Society of the District of Columbia has decided to appoint a committee to cooperate with the District of Columbia health department to bring about the immunization of Washington school children against diphtheria (THE JOURNAL, November 10, p. 1468). The society also approved the efforts of the U. S. Public Health Service to educate the public in the prevention of diphtheria by means of toxin-antitoxin immunization.

Personal.—Lieut. Col. Fielding H. Garrison, assistant librarian of the surgeon general's library, gave a series of lectures recently at the Mayo Foundation, Rochester, Minn., on the history of medicine.——Col. Bailey K. Ashford, U. S. Army, retired, has been designated a delegate to the International Congress of Tropical Medicine and Hygiene to be held in Cairo, Egypt, December 15-22, representing the U. S. Army Medical Corps and the government of Porto Rico.——The Gorgas Memorial Institute sponsored a luncheon at the Willard Hotel, November 14, which was attended by diplomats from Central and South American countries and by the surgeon generals of the U. S. Army and Navy medical departments and of the U. S. Public Health Service.

Medical Student Sues for Reinstatement.—A suit was instituted in the District of Columbia Supreme Court, November 1, by a medical student from Cincinnati to compel the president of Howard University to restore his name to the roster of the freshman class in the medical school. The plaintiff complained that when school began, October 9, he was accepted as a member of the freshman class and a few days later was requested by the dean to withdraw, and that on refusing to do so his name was stricken from the rolls by the executive committee. He claims that the action of the committee was illegal, as a quorum was not present at the time the action was taken.

ILLINOIS

Society News.—The Chicago Laryngological and Otological Society will meet, December 3, at 185 N. Wabash; following demonstrations, Dr. Lewis Fisher, Philadelphia, will discuss "Neuro-Otology," and Dr. Walter H. Theobald, "Use of Lipiodol as a Diagnostic Aid in Diseases of the Accessory Nasal Sinuses."——The Illinois state and Chicago societies of industrial medicine and surgery will hold a two day joint meeting, December 6-7, at Cook County, St. Luke's and the West Side hospitals. The evening meeting will be addressed by Dr. Clarence W. Hopkins on "Head Injuries, Differential Diagnosis and Treatment"; there will be a moving picture demonstration of infections of the hand.——The Chicago Tuberculosis Society will be addressed, December 13, at the Medical and Dental Arts Club by Drs. Minas Joannides and George Tsoulos on "Etiology of Mediastinal and Interstitial Emphysema."——The one hundredth regular meeting of the Chicago Society of Internal Medicine, November 26, was addressed by Dr. Géza de Takáts on "Impairment of Circulation in the Varicose Extremity," and Dr. Louis M. Warfield, Milwaukee, on hyperthyroidism.——The November meeting of the Chicago Orthopedic Society was at the Children's Memorial Hospital, where members of the staff presented a clinical program.——Dr. Benjamin Goldberg addressed the annual meeting of the New York Tuberculosis and Public Health Association, November 22, New York City, on "A Unified Plan of Tuberculosis Control."——The November 21 program before the Chicago Medical Society was furnished by the Illinois Society for Mental Hygiene.——The Chicago Ophthalmological Society was addressed, November 19, by Drs. Sydney S. Schochet on "Eye Transplants in Experimental Endometriomas"; Edward C. Ellet, Memphis, Tenn., "Glaucosan Therapy in Glaucoma," and Peter Kronfeld, "Modern Viewpoints About the Mechanism of Glaucoma."——The Chicago Urological Society was addressed, November 22, by Drs. Colquitt O. Ritch on "Intestinal Obstruction Caused by Acute Seminal Vesiculitis"; Leslie L. Veseen, "Fibromuscular Hyperplasia of the Prostate," and Daniel N. Eisendrath, "Brief Report of the German and French Urologic Congresses."

Chicago

Personal.—Col. J. D. Graham, I.M.S., representative of India on the health committee of the League of Nations and Office Internationale, Paris, public health commissioner with the government of India, and secretary of the governing body of the Indian Research Fund Association, will visit Chicago, November 29-December 3, as the guest of the Rockefeller Foundation to observe public health activities.

Lending Aid to Quackery.—At a meeting, November 13, the council of the Chicago Medical Society considered an editorial entitled "Lending Aid and Comfort to Quackery" which was published in THE JOURNAL, November 3. The council voted to instruct the secretary to prefer charges of unethical conduct against those whose names appear in that article who testified in the case in a manner which was construed as lending aid to quackery.

Orthodontia Clinic Service.—Northwestern University Dental School announces that the enlarged space afforded by the new building makes it possible to care for a larger number of orthodontia patients. Dentists are therefore invited to send children who are entitled to the low fees charged for this service. Abram Hoffman, D.D.S., formerly head of the orthodontia department of New York University, is in charge of this work at Northwestern, while Howard A. Denbo, D.D.S., formerly on the staff of the Eastman Dental Clinic, Rochester, N. Y., has general direction of the children's department, including the orthodontia and dental clinics. Inquiries should be made to Dr. Denbo, Superior 4500.

The Diphtheria Situation.—The diphtheria situation in and about Chicago (THE JOURNAL, September 29, p. 967), is considered serious by the Chicago health commissioner, Dr. Arnold H. Kegel. Forty-one new cases were reported over Saturday and Sunday of last week, and for the week ending November 16 there were 145 cases and twelve deaths.

The department is making every effort to locate diphtheria carriers. Dr. Kegel does not consider diphtheria epidemic, but the situation calls for great care. The essential thing, the health commissioner says, is for all authorities to exercise the greatest care in detecting and reporting suspected cases. The Cossitt School in LaGrange was closed temporarily following the development of seven cases.

KANSAS

Society News.—The medical school of the University of Kansas has completed a new 100 bed ward building, costing $200,000 and making the total capacity 220 beds, and a nurses' home, which will accommodate eighty nurses. These are part of a $3,000,000 plant proposed for the school and the Bell Memorial Hospital of Kansas City. The ward building will not be opened at present as the last legislature failed to provide for equipment.——At the October 18 meeting of the Dickinson County Medical Society, Abilene, Dr. Alfred O'Donnell, Ellsworth, read a paper on "Penetrating Wounds of the Abdomen Through the Rectum." The next meeting of the society was held in honor of Dr. James N. Ketchersid, Hope, who has been in practice about fifty-five years.

MICHIGAN

Health at Flint.—Telegraphic reports to the U. S. Department of Commerce from sixty-eight cities with a total population of about 30 million, for the week ending November 10, indicate that the lowest mortality rate (6.7) was for Flint, and that the mortality rate for the group of cities as a whole was 12.2. The mortality rate for Flint for the corresponding week last year was 5.5 and for the group of cities, 11.9. The annual rate for the sixty-eight cities for the forty-five weeks of 1928 is 12.9, as against a rate of 12.3 for the corresponding weeks of last year,

Society News.—The Genesee County Medical Society met in the new auditorium of the Hurley Hospital, Flint, October 25, at which time the auditorium of the hospital was formally opened. Among the speakers at the ceremony was Dr. Malcolm L. Harris, Chicago, President-Elect of the American Medical Association.—— The extension division of the University of Michigan has assigned physicians to give five lectures on health topics before the pupils of the Cassopolis schools. The third will be a dental lecture, December 11, by F. H. Essig, D.D.S., Dowagiac; the fourth, January 8, by Dr. William C. McCutcheon, Cassopolis, on the heart, and the last, February 5, by Dr. Ersom M. Cunningham, Cassopolis, on the eye.——A symposium was conducted, November 6, before the Wayne County Medical Society, Detroit, on incipient tuberculosis, the speakers being Drs. Max Pinner, Northville; Bruce H. Douglas, Northville, and Edward J. O'Brien, Detroit.—— Dr. Hugh Cabot, dean and professor of surgery, University of Michigan Medical School, Ann Arbor, addressed the Pontiac Exchange Club, November 23; all members of the Oakland County Medical Society were invited to be present.——The health lectures for the Pontiac district, sponsored by the extension division of the University of Michigan, will be given by L. M. Knox on "The Heart"; Dr. Frederick A. Baker, "The Eyes"; Dr. Bertil T. Larson, "The Ears"; P. B. Jones, D.D.S., "Dental Fads and Fancies," and Dr. Albert L. Brannock, "Diphtheria" and "Mental Hygiene."——Dr. Emil Novak, Baltimore, addressed a joint meeting of the Wayne County Medical Society and the Detroit Obstetrical and Gynecological Society, November 20, on "Uterine Bleeding."——Dr. Louis H. Newburgh, professor of clinical investigation, University of Michigan Medical School, Ann Arbor, addressed the Gratiot-Isabella-Clare County Medical Society, October 4, on nephritis. ——Members of the Alpena County Medical Society presented a beautiful clock to Dr. and Mrs. Duncan A. Cameron at the September meeting in Saginaw as a wedding present.

MINNESOTA

Society News.—The Ramsey County Medical Society and the Hennepin County Medical Society held a joint dinner meeting at the U. S. Veterans' Bureau Hospital, Fort Snelling, November 5, followed by an inspection of the hospital and seven papers by members of the staff; cases were presented. ——Dr. Emil S. Geist addressed the Minnesota Academy of Medicine, November 14, at the Town and Country Club, St. Paul, on "Loose Bodies in the Knee Joints," and Dr. Ernest Hammes on "Delayed Traumatic Intracranial Hemorrhage." ——Sir Charles A. Ballance, London, England, gave a Mayo Foundation lecture at Rochester on reminiscences of some great surgeons and neurologists of the past, with lantern slides illustrating the work of the great pathologists of the first half of the last century.

MISSOURI

Hospital Changes Name.—The board of managers of the Missouri Baptist Sanitarium at the October meeting changed the name of the institution to the Missouri Baptist Hospital. There is under construction a 100 bed addition, which will make the capacity 500 beds. The addition will be especially for orthopedic cases, but will provide also for physical therapy and additional laboratory, metabolic and radiologic facilities. The superintendent, Dr. Benjamin A. Wilkes, has been associated with the hospital for thirty-two years. Physicians are cordially invited to visit the Missouri Baptist Hospital when in St. Louis.

Society News.—Dr. Wilson A. Myers, Kansas City, addressed the Kansas City Southwest Clinical Society, November 13, on "Bladder Disturbances Associated with Lesions of the Lumbosacral Spine," and Dr. John R. Caulk, St. Louis, on "The Prostatic Cautery Punch for Obstruction at the Neck of the Bladder."——Dr. Austin B. Jones, Kansas City, addressed the Clay County Medical Society, Excelsior Springs, October 25, on "Diagnosis and Treatment of Auricular Fibrillation." ——The staff of St. Mary's Hospital presented the program before the St. Louis Medical Society, November 20, the speakers being Le Roy Sante, William T. Coughlin, Ralph A. Kinsella, Dean Collier, Louis Rassieur and Frederick V. Emmert, each two speakers discussing fractures of the skull, heart disease and twin lithopedion, respectively.

NEW JERSEY

Child Hygiene Program.—According to the state department of health, 350 communities in New Jersey are carrying on a continuous child hygiene program under its supervision. There are 116 child hygiene nurses, nineteen of whom are paid entirely by the state department of health, eighty-six entirely by municipalities, and eleven partly by the state and municipalities. These nurses, the department notes, made thousands of visits to expectant mothers and to mothers of infants and older children. In the preschool clinics, 2,392 children were immunized against diphtheria and more than 9,000 Schick tests and immunization tests were made among school children in the communities where these nurses are employed.

Society News.—Dr. Jay F. Schamberg, professor of dermatology and syphilology, University of Pennsylvania Graduate School of Medicine, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, on "The Newer Aspects of the Treatment of Syphilis."——Among others, Dr. David R. Bowen, Philadelphia, addressed the October 12 meeting of the Atlantic County Medical Society on "Massive Collapse of the Lung." ——The Bergen County Medical Society is preparing plans for a six months' public education campaign. Among others, Dr. William H. Dieffenbach, New York, addressed the October meeting of the society.——The October meeting of the Cape May County Medical Society was addressed by Drs. Collier F. Martin, Philadelphia, on "Symptoms and Diagnosis of Rectal Infection," and Charles S. McGivern, Atlantic City, on "Relation of Nasal Infection to Lower Respiratory Symptoms."—— The Cumberland County Medical Society celebrated its one hundred and tenth anniversary, October 11. Dr. Hobart A. Hare, professor of therapeutics and materia medica and diagnosis, Jefferson Medical College, Philadelphia, read a paper on "Disease of the Blood Vessels Outside the Heart"; Dr. Thomas A. Shallow, Philadelphia, gave an illustrated lecture on "Traumatic Lesions of the Head."

NEW YORK

Health Commissioner Without an Automobile.—The Bulletin of the Medical Society of the County of Erie and the Buffalo Academy of Medicine notes that the health commissioner of Buffalo has been denied an automobile for use in his official business for nearly a year. He has been obliged to use a taxicab when called on business concerned with protection of the public health. Other city departments are "crowded to the brim with cars." The reason does not seem clear why the health department has been obliged to practice such strict economy. The estimated population of Buffalo in 1925 was 538,016.

New York City

New York Creates Hospital Department.—The mayor of New York signed a bill, November 9, constituting the city department of hospitals, which becomes effective, February 1. It provides for the unified control and administration of the city's twenty-six hospitals under a commissioner of hospitals yet to be selected. Most of these institutions now, says the New York *Times*, are under the jurisdiction of the department

of public welfare; others are managed by the department of health and still others by the trustees of Bellevue and allied hospitals. The new department was created in the interest of efficiency and economy. At the public hearing, previous to the signing of the bill by the mayor, many persons were present, including Dr. Samuel W. Lambert, president of the New York Academy of Medicine, who favored the bill.

Report of Hospital Fund.—The annual report of the United Hospital Fund, recently made public, indicates that its fifty-nine member hospitals gave 1,674,988 days of free hospital service. The annual distribution of the fund provided for 47 per cent of this free service in the wards and 39 per cent of the free service in the outpatient departments. The United Hospital Fund last year allotted $625,000 to its members for this work. Three new member hospitals were admitted: Beth Moses Hospital of Brooklyn, the Bronx Hospital, and Brooklyn Eye and Ear Hospital. Four units in the new medical center are members: Sloane, Presbyterian, Babies' Hospital and the Neurological Institute. The fund will conduct its annual appeal to the public for funds Thanksgiving week. The chairman of the executive committee of the fund is Mr. Henry J. Fisher.

Protecting the Oyster Supply.—All shellfish beds in the limits of New York City have been contaminated and signs are posted on the adjacent shores warning the public. The city health department maintains a boat to patrol these areas. Last year the health department examined bacteriologically 1,372 samples of shellfish and declared unfit and destroyed 26,200 pounds. The efforts of the department of health to protect the public against polluted shellfish reaches into every department of the shellfish industry. The city receives its supply of shellfish from along the coast from Canada to Florida. A sample from every shipment reaching port is subjected to bacteriologic examination. The presence of *Bacillus coli* is regarded as evidence that the shellfish have been exposed to pollution. No shipment of oysters can enter the port without a permit from the health department, and before a dealer applies for a permit he must file a certificate from the authorities of the state from which his shellfish come to the effect that the beds there have been found free from contamination. The U. S. Public Health Service must approve this certificate before the dealer can ship out of the state. Furthermore, the producer must furnish a health certificate for each handler of shellfish showing that he is free from infectious disease. After these regulations have been complied with, a number is assigned to the applicant for a permit. He tags each container with a uniform tag which has thereon his number, the name of the body of water from which the supply of shellfish was taken, the number of the bed and the date. Finally, on the arrival of his oysters in port, the New York City Health Department examines them bacteriologically.

NORTH CAROLINA

Decrease in Death Rate.—The death rate in North Carolina for 1927, according to the U. S. Department of Commerce, was 1,136 per hundred thousand of population, as compared with 1,209 in the preceding year. The decrease was accounted for by fewer deaths from influenza, pneumonia, enteritis, tuberculosis, nephritis, puerperal diseases, typhoid and malaria. There was an increase, however, during the year in the death rates from whooping cough, pellagra and measles.

John Early Recovers from Leprosy.—John Early, the North Carolina mountaineer, who was brought to public attention by his repeated escapes from the jurisdiction of health authorities, will leave the U. S. Leprosarium at Carville, La., this month and return to his farm in North Carolina, having recovered from leprosy. For more than a year microscopic tests of his tissues and blood have been negative for the leprosy bacillus. He is rugged, although scarred, and is expected to round a full period of useful old age. John Early constantly rebelled against his fate and the routine and painful injections of chaulmoogra oil and the discipline of the institution. He would depart at night by stealth and prearrangement with confederates on the outside of the institution, make his way by varied means to his destination and usually announce himself to the press and local health officer. In April, 1927, he went to his old home in North Carolina, from which a petition was received by the surgeon general of the U. S. Public Health Service, signed by practically all the residents of the town, requesting that he be allowed to spend the remainder of his days in those remote hills. The surgeon general was unable to grant the request. Armed resistance, subterfuge and habeas corpus proceedings failed in turn and John Early surrendered in May of that year, returning to the National Leper Home at Carville, where he finally yielded to treatment. There is scant danger of his relapse, the public health service says. Only one recovered leper discharged from the institution since 1921 has suffered a recurrence. When Early was first detained by the public health service, he was kept at Port Townsend, Washington; afterward he lived in a little home for about four years as a guest of the District of Columbia. He then became a patient at the Louisiana Leper Home, and in 1921, when the national home was established in Carville, he was moved. The treatment of leprosy is tedious and sometimes painful. Formerly, injections of chaulmoogra oil caused excruciating pain for hours, but the public health service devised a year ago a painless method of administration by mixing with each dose a harmless anesthetic. Early's eccentricities have served to keep the public aware of the fact that there is a leprosy problem in the United States. It is not unlikely that he contributed to the creation of the public sentiment necessary to pass the law of Feb. 3, 1917, enabling the U. S. Public Health Service to take over the care of lepers. In the last sixteen months, twenty-four patients have been discharged as recovered or with the disease arrested from the leper home, where the patients practice a pretty ceremony on such occasions. Carville patients rejoice now when escorting a recovered patient to the gate to go forth, whereas long ago a burial service was read in English churches over a leper departing to hopeless segregation.

OHIO

Diphtheria Carriers in Public School at Dayton.—The lowest prevalence of diphtheria for many years in Dayton has been in the last year up to November 1. However, in the last six weeks there were eight cases in a school of 675 pupils. The city health department discovered sixteen carriers, including one teacher, who were removed from the school. In an effort to prevent the further development of cases, about 1,200 nose and throat cultures were taken. The situation is rapidly improving. There had been only four deaths from diphtheria in Dayton this year up to November 1.

Hospital News.—In two widely separated hospitals in Ohio, the Grant Hospital in Columbus and the Good Samaritan in Cincinnati, a thief entered the room of a patient pretending to be a physician and made way with the patient's watch.——The Association of Assistant Physicians of Ohio State Hospitals held its twenty-fifth anniversary in October at Columbus under the presidency of Dr. Isabel A. Bradley, Columbus.——The new 140 bed St. Thomas Hospital, Akron, was open for patients, October 1.——The eight story building being erected by the city hospital of Akron will be completed about February 1.——The Stark County Tuberculosis Hospital is expected to be ready for occupancy, Jan. 1, 1929.——The Ashtabula General Hospital has recently added a physical therapy and roentgen-ray department with funds donated by the public; also a complete new dressing room for the attending physicians with lockers, shower baths and other conveniences.——The St. Luke's Hospital, Cleveland, although less than a year old, has already let the contract for a new wing to cost three quarters of a million dollars.——The old tuberculosis building at the National Military Home, Dayton, which had not been in use for some time, was destroyed by fire in September.——The bond issue for the new Lucas County Hospital at Toledo was approved at the recent election by a vote of nearly two to one.

Dr. Hamann Retires as Dean—Dr. Sollmann Appointed.—The trustees of Western Reserve University announced, November 14, that the resignation of Dr. Carl A. Hamann, dean of the school of medicine, had been accepted with regret and that on nomination of the medical faculty, Dr. Torald H. Sollmann, professor of pharmacology, had been appointed dean of the medical school. Dr. Hamann had requested to be relieved as dean to devote himself more fully to the practice of surgery and other duties. He will continue to teach and to serve as a visiting surgeon at Charity Hospital and as chief of the surgical staff in the city hospital. Dr. Hamann has been dean since 1912. During his administration, Western Reserve University School of Medicine has not only advanced among the medical schools of the country, but has moved to the university campus, where a new medical center has been erected (THE JOURNAL, March 26, 1927, p. 1012). He has for many years been associated on the faculty with his successor, who is in accord with the policies that he has established. Dr. Sollmann has long been in close touch with the affairs of the school, having served on the boards and committees of the faculty for years. He is an alumnus of Western Reserve University, and was chairman of the building committee. He is an outstanding authority on pharmacology, is the author of voluminous contributions to scientific journals and textbooks, has been a member of the executive committee of the United States Pharmacopeia for many years, and a member of the Council

on Pharmacy and Chemistry of the American Medical Association since its foundation in 1905.

Practicing Physicians to Give Toxin-Antitoxin.—After six years of administration of toxin-antitoxin to school children by the health department of Toledo, the commissioner of health, Dr. Paul F. Orr, has discontinued that administrative policy and has requested practicing physicians to administer toxin-antitoxin themselves. The Toledo Academy of Medicine, which called a special general meeting to consider this subject, October 26, congratulated the health commissioner on his administrative policy, which includes further that the health department nurses in the future do educational work only with activities centered on the preschool child. In his letter to the academy, Dr. Orr pointed out why the previous arrangement of immunizing school children was not entirely satisfactory. Many of the diphtheria deaths, he said, occurred in children under 5 years of age, so by waiting until the child enters school before immunizing him that percentage of diphtheria deaths would not be prevented. Further, the older the child the smaller the percentage that are immunized with three injections of toxin-antitoxin, whereas among preschool children from 85 to 90 per cent are immunized by three injections. Pseudoreactions, he said, are rarely observed in immunizing preschool children. There is every reason, therefore, why an attempt should be made to immunize the child before he is old enough to go to school. The health commissioner believes that the administration of toxin-antitoxin by the family physician can be made a successful administrative policy, and for that reason his department decided to give the family physician every opportunity to take over this important problem. There are already about 30,000 school children in Toledo who have been immunized. The health department will furnish free toxin-antitoxin to all physicians and the nurses of the department will continue to do educational work in the homes. The children of indigent families will be given the injections at the immunizing clinic of the health department. The future policy of the department toward diphtheria immunization will depend largely on results obtained during the coming year under the new arrangement. If practicing physicians show a cooperative spirit and succeed in immunizing a large number of children, the health department will continue the arrangement permanently.

PENNSYLVANIA

Illegal Practitioner Expelled from County.—Clayton R. Miller, whom the bulletin of the Fayette County Medical Society says is known as the "voodoo doctor of Brownsville," has been fined $300 and costs and expelled from Fayette County for practicing medicine without a license. Miller admitted, it is said, that he used charms and "grass salves" in an effort to heal the sick.

Chiropractor Ott Fined.—The department of public instruction at Harrisburg caused the prosecution of Chiropractor Joseph E. Ott of Kane in October on a charge of practicing medicine and chiropractic without legal qualifications. Ott pleaded guilty, having never taken an examination, and was sentenced to pay a fine of $50 and costs and ordered to stop practicing within the state.

Dr. Guthrie Honored.—The clinic building at the Packer Hospital, Sayre, was dedicated, October 11, and named the Guthrie Building in honor of Dr. Donald Guthrie, a trustee and councilor of the Medical Society of the State of Pennsylvania and surgeon in chief of the hospital. Among those present at the dedication were Dr. Charles H. Mayo, Rochester, Minn., Herbert A. Gibbons, biographer, and Judge Henry S. Fuller, Wilkes-Barre.

Society Observes One Hundredth Birthday.—The Erie County Medical Society, Erie, celebrated its one hundredth anniversary, November 5, at the Sunset Country Club. The three oldest medical practitioners in Erie were guests of honor: Dr. Peter Barkey, Dr. James E. Silliman and Dr. David N. Dennis. In addition to entertainment, motion pictures of the society's last golf tournament were shown. Dr. Benson A. Cohoe, Pittsburgh, gave an address on "Clinical Signs of Pituitary Dysfunction," and Dr. Thomas G. Simonton, Pittsburgh, president of the state medical society, on "Erie and the 1929 State Medical Society Convention."

Biologic Farm Given to Wistar Institute.—To promote research work at the Wistar Institute in Philadelphia, Effingham B. Morris, LL.D., its president, has given the institute a 150 acre farm located in the quiet region of Bucks County, about 27 miles from the buildings of the institute in the city. *Science* says that the farm is about one third of an original grant under patent from William Penn; Dr. Morris will continue to farm the other two thirds. It is equipped with buildings, machinery and live stock, and laboratory facilities for experimental work will be provided. Several species of small mammals will be maintained, and studies may be extended to the larger domestic animals. The farm, which will be known as "the Effingham B. Morris Biological Farm of the Wistar Institute of Anatomy and Biology," will be ready for use next spring. Living quarters for investigators can be had in the neighborhood. It is hoped that the old Colonial brick farm house can be made into a club house. Opportunity will be afforded for the study of both animal and plant life.

Philadelphia

Hospital News.—About fifty physicians at a meeting, November 12, approved plans for the construction of a $500,000 hospital-hotel on Tenth Street below Spruce, which will be known as The Clinton. It is to be eight stories high, and of 200 bed capacity, with private and semiprivate rooms and with accommodations for patients with families out of town.——The Philadelphia General Hospital, Thirty-Fourth and Pine streets, dedicated its new auditorium, November 12.

Society News.—The Philadelphia County Medical Society, November 28, will consider the subject of nervous diseases, Drs. Charles S. Potts speaking on disorders of ancestors; Seymour DeW. Ludlum, diseases and environment of childhood; William B. Cadwalader, the occupation and life of the adult; Daniel J. McCarthy, nervous diseases in conjunction with visceral disorders, and John H. Stokes, nervous diseases in association with skin diseases.——Dr. Theodore B. Appel, state health officer, gave the graduating address at the training school for nurses of the University of Pennsylvania, November 14.——Dr. Joseph Franchini, Bologna, addressed the medical history section of the College of Physicians, November 20, on "Life and Work of Marcello Malpighi," which was illustrated by instruments, letters, medals and slides; Dr. Francis H. Adler spoke on the life of Albrecht Von Graefe, and George H. Meeker, Ph.D., on "Friedrich Wöhler and a Biologic Milestone."——Among others, Surg. Gen. Edward R. Stitt, U. S. Navy, and Brig. Gen. Frank R. Keefer, and Major William R. Dear, U. S. Army Medical Corps, spoke at the armistice dinner, November 13, given by the Philadelphia County Medical Society.

VIRGINIA

Dr. Watts Honored.—The Albemarle County Medical Society gave a banquet, October 2, at Charlottesville in honor of Dr. Stephen H. Watts who, after more than twenty years' service as professor of surgery and gynecology at the University of Virginia Department of Medicine, Charlottesville, has resigned and retired from active practice. Dr. Watts was presented with a life membership in the society. The chief speaker of the evening was Dr. Robert L. Page, Batesville.

Society News.—Among others, Dr. James C. Flippin, University, addressed the University of Virginia Medical Society, October 8, at Charlottesville on therapy of anemia.——Dr. George B. Lawson has been elected president of the Roanoke Academy of Medicine for the ensuing year.——Dr. Jesse M. Shackelford, Martinsville, has been reelected president of the Virginia Hospital Association.——Dr. William F. Drewry, city manager of Petersburg, has been elected a vice president of the Virginia League of Municipalities.

State Medical Election.—At the fifty-ninth annual meeting of the Medical Society of Virginia, Danville, October 15, Dr. J. Bolling Jones, Petersburg, was made president, and Dr. Charles R. Grandy, Norfolk, was made president elect. About 289 physicians attended this meeting. The Virginia Pediatric Society, which held its annual meeting at the same time, elected Dr. Charles E. Conrad, Harrisonburg, president for the ensuing year; Dr. Franklin D. Wilson, Norfolk, vice president, and Dr. William B. McIlwaine III, Petersburg, secretary.

Railroad Deaths Decrease — Automobile Deaths Increase.—There were 167 railroad and street car deaths in Virginia in 1927, marking the gradual decline from the highest peak, 242, in 1913. During the same period, automobile deaths have steadily increased, with two slight exceptions, from 21 to 263. The state rule, in case of collisions, is to charge the death to the heaviest machine. If automobiles were charged with all deaths caused by the attempts of drivers to beat the train to a crossing, the automobile deaths would be still further increased and the train deaths materially reduced. The railroads are entitled to much credit for the precautions which they have taken to prevent accidents.

"My Old and Intimate Friend, Dr. Craik."—The *Virginia Medical Monthly* notes that a monument was unveiled with appropriate ceremony, October 14, in the graveyard of the

old Presbyterian Meeting House in Alexandria. It marks the grave of the chief surgeon of the Continental Army, Dr. James Craik, whose grave previously had remained unmarked. Among the speakers at the unveiling of the monument were Surg. Gen. Merritte W. Ireland, U. S. Army, and Representative R. Walton Moore. The deceased is said to have enjoyed the most intimate friendship with General George Washington, first President of the United States, who referred to him in his will as "my old and intimate friend, Dr. Craik."

Medical History of Virginia.—At its Danville meeting, the Medical Society of Virginia approved plans to assemble material for a history of medicine of Virginia. The committee desires to collect all that is known of "folk medicine" in the state, and there are three sources: Old England, the Indian and the Negro. It is believed that this material should be collected and preserved. Members of the society are therefore requested to send instances of "folk beliefs" which they have encountered among the people of their communities. Dr. Wyndham B. Blanton, 828 West Franklin Street, Richmond, is chairman of the committee, and Drs. Beverley R. Tucker, Richmond, and Frederick C. Rinker, Norfolk, members.

WASHINGTON

Society News.—The Walla Walla Valley Medical Society, Walla Walla, was addressed, November 9, by the president of the state medical association, Dr. Frederick H. Brush, Yakima, and Dr. Samuel E. Lambert of Spokane, as well as by the secretary of the public health league of the state. The December meeting of the society is to be addressed by Drs. Robert C. Coffey, Portland, Ore., and Frederick Epplen, Seattle.——The King County Medical Society was addressed, November 5, by Dr. George F. Strong, Vancouver, B. C., on "Periarteritis Nodosa."

GENERAL

American Board of Otolaryngology.—An examination will be held in Portland, Ore., July 8, 1929, by the American Board of Otolaryngology during the annual session of the American Medical Association and in October in Philadelphia. At the examination in New York, October 11, 113 passed out of 130 applicants, and at the October 15 examination in St. Louis, sixty-eight of the seventy-nine applicants passed. The secretary of the board is Dr. William P. Wherry, 1500 Medical Arts Building, Omaha.

News of Epidemics.—Five cases of typhoid were reported in Matawan, N. J., November 6, at which time the source of the disease had not been located.——Eighty-one cases of smallpox in the St. Agathe, Chicoutimi and St. Thomas (Canada) districts were reported, November 8.—The epidemic of scarlet fever, which has caused the closing of schools, churches and the motion picture theater, of Salem, Ind., was on the decline, November 2.——Forty cases of chickenpox were reported in Washington, Pa., for the month of October.——Thirty-one cases of whooping cough were reported for the week of October 27 in Toledo, Ohio.——The Ohio State Department of Health reported 855 cases of chickenpox for the month of October.——A mild epidemic of diphtheria was reported for Greenville, S. C., November 4.——An epidemic of measles in Decatur, Ill., amounted to 104 cases, November 9.——Seventy cases of diphtheria were reported, November 13, in the various smaller cities in the Calumet district and vicinity of Hammond, Ind.; forty-two cases were discovered in Calumet City, Ill., and twenty cases in Indiana Harbor.——The measles epidemic in Bradford County, Pennsylvania, caused the closing of schools, November 5, at Camptown, and the Scott School at Towanda township.——The ban on the city water supply of Olean, Cattaraugus County, N. Y., was reported lifted, November 7, when no cases of typhoid had been reported over the week-end; seven suspects were released when it was learned that they did not have typhoid. The epidemic had amounted to more than 200 cases at the time of the last report.

Near East Relief and Golden Rule Sunday.—For several years, the Near East Relief, an organization chartered by Congress in 1919, has been providing shelter, food, clothing and training for thousands of children who were made orphans by the vicissitudes of the World War. Practically all of those who are still being cared for are under 16 years of age. This American organization was formerly almost the sole friend of hundreds of thousands of refugees in the Near East, but its efforts have been confined of late to the orphan children. The Near East Relief has spent about $100,000,000 in this work and many American citizens and business organizations have contributed to this fund. What is said to be the last appeal to the American public for funds to close up this work in an honorable manner is now being made. The Near East Relief is requesting contributions amounting to $6,000,000 to carry on with the 30,000 children still under its care. The aim is to place all of them properly outside of orphanages or other institutions except those who through mental or physical defects will have to be permanently cared for in such places. A feature of this campaign is the observation of Golden Rule Sunday, which, this year, falls on December 2. At that time, the whole world is requested to think of the hungry children in the Near East, to eat a meal similar to what these refugees have been compelled to eat and to make a contribution for their aid. These children are orphans. The Near East Relief operates in Greece and her islands, and in Armenia, Persia, Syria and Palestine. An annual report of its work is made to the Congress of the United States. The chairman of the national committee is John H. Finley, New York. Among the honorary vice chairmen are Major General James G. Harbord, Frank O. Lowden and Felix Warburg. Near East Relief has an office at 151 Fifth Avenue, New York.

Foundation for Mental Hygiene.—The establishment of the American Foundation for Mental Hygiene, Inc., was announced, November 8, during the annual meeting of the National Committee for Mental Hygiene, New York. It is to be a philanthropic foundation. It comes into existence without an endowment of its own but is confident that the necessary funds will be forthcoming. The foundation already has been made the beneficiary of a gift of $50,000 from the estate of the late Mrs. John I. Kane, and has an additional pledge of a still larger gift toward its first $1,000,000. The exclusive purpose of the foundation is said to be to perform "work that will enable men, women and children to live happier, healthier and more efficient lives through a better understanding and management of the processes of their minds and of the controlling forces in human behavior." The presiding officer at the meeting at which the foundation was announced, Dr. Bernard Sachs, New York, vice president of the National Committee for Mental Hygiene, said that the work of the foundation should appeal to nonmedical as well as to medical interests; that it will have the advantage of being in a position to modify its program from decade to decade, and that the subject of mental hygiene will undoubtedly become more important as the "decades and generations move on. It is so broad that it covers human needs which will always exist and, therefore, calls for permanent provision. Those who give to it now will be the pioneers whose names will long be remembered." The officers of the foundation are Dr. William H. Welch, Baltimore, honorary president; Dr. Arthur H. Ruggles, Providence, R. I., president; James B. Angell, the Rt. Rev. William Lawrence, D.D., and Dr. William L. Russell, White Plains, N. Y., vice presidents; Frederic W. Allen, treasurer, and Clifford W. Beers, secretary. The trustees of the foundation include besides the officers named, the following laymen and physicians: Dr. C. Floyd Haviland, W. Curtis Bok, Dr. Charles P. Emerson, Charles A. Stone, Dr. William A. White, Dr. Frankwood E. Williams, Harry P. Robbins, Dr. Bernard Sachs, Dr. Clarence J. D'Alton, Lindley H. Hill, and Dr. George L. Wallace.

Contributions to Medical Science by Military Officers.—In a paper read before medical officers of the District of Columbia, Lieut. Col. Charles F. Craig, medical corps, U. S. Army, said that the opinion seems to prevail that the administrative duties of medical officers interfere with their professional duties so as to render the latter of secondary importance. Colonel Craig made a survey of the relation of medical officers of armies to scientific medicine, and concluded that a commission in the medical corps of the U. S. Army, far from preventing professional development, is an inducement toward professional advancement. In Garrison's history of medicine, it appears that Dioscorides, a Roman army surgeon, made the first materia medica, which passed through many editions and was authoritative up to the seventeenth century. Saliceto, an Italian military surgeon of the thirteenth century, was the first to introduce the suture of nerves and to recognize the venereal origin of chancre and buboes. Among the German military surgeons were von Graefe, the founder of modern plastic surgery; Stromeyer, whom Garrison calls the father of modern military surgery in Germany, and who was one of the founders of modern orthopedic surgery. Von Helmholz, discoverer of the ophthalmoscope, achieved much of his reputation while a surgeon in the Prussian army. Klebs, Loeffler and Gaffky, pioneers in bacteriology, were German military surgeons as was von Behring, who introduced diphtheria antitoxin. In France, Paré, the great surgeon, derived nearly all of his knowledge through association with armies. Laënnec was an army surgeon during the French Revolution. Larrey of Napoleon's time was the originator of the ambulance service. Laveran, a military surgeon of the nineteenth century, discovered the plasmodium of

malaria and made other discoveries of the method of transmission of diseases caused by protozoa. In England the illustrious John Hunter was for some time an army surgeon. Sir John Pringle was the founder of modern military medicine and originated the Red Cross idea. English medical officers in the Indian Medical Service have made many contributions to scientific medicine. The crowning achievement of these officers was that of Sir Ronald Ross who, in 1897, discovered the method of transmission of malaria. Sir Almoth Wright, a member of the Royal Army Medical Corps, first demonstrated the practicability of typhoid immunization of troops. Sir David Bruce discovered the cause of malta fever. Sir William Leishman together with Donovan discovered the cause of kala-azar. The first three surgeon generals in the U. S. Army were Morgan, Shippen and Rush. William Beaumont first accurately described the movements of the stomach during digestion and the effect of gastric juice on different foods. Sternberg was a pioneer bacteriologist. The commission comprising Reed, Carroll, Agramonte and Lazear demonstrated the method of transmission of yellow fever. John Shaw Billings created the surgeon general's library. Col. Frederick F. Russell demonstrated the protective value of typhoid vaccination. Gorgas was the great sanitarian of his day, who made possible the completion of the Panama Canal. There are other men of our corps—Bushnell, Nichols, Colonel Craig, himself, and others—whose influence reach beyond the army into the most distant scientific circles.

HAWAII

Society News.—At the Pan-Pacific Women's Conference in Honolulu recently, the chairman of the health section was Dr. Ting Me Iung, whose address was on "The Status of Preventive Medicine in China"; other speakers included Dr. Yayoi Yoshioka on "The Story of Medical Education of Women in Japan," and Dr. Anna E. Rude, Los Angeles, on "Development of Child Hygiene in California." The international chairman of the conference was Jane Addams of Chicago. ——Dr. Aldred S. Warthin, professor of pathology, University of Michigan School of Medicine, Ann Arbor, and editor of the *Annals of Internal Medicine*, recently addressed a special meeting of the Honolulu Medical Society on the pathologic changes of latent syphilis. Dr. Warthin spent a month in the islands and secured the cooperation of several physicians for an investigation of latent syphilis in the native and oriental races, which will be part of a study of latent syphilis carried out under a grant from the National Committee on Syphilis at the University of Michigan.

FOREIGN

Meeting of Osler Club.—At a recent meeting of the Osler Club in London for the study of the history of medicine, the subject considered was the evolution of cardiac therapeutics. Mr. C. J. S. Thompson, honorary curator of the historical collection, Royal College of Surgeons of England, traced the history of digitalis to the time of Withering. Dr. John D. Rolleston dealt with Withering's contributions to epidemiology. Withering's "Account of the Foxglove" was on display at the meeting. Other papers dealt with auricular fibrillation and the surgical treatment of mitral stenosis. A tribute was paid to the memory of Friedrich Wöhler, who first synthesized urea. Sir William Osler was an admirer of Withering and he bequeathed the Withering Letters to the library of the Royal Society of Medicine.

Medical Students Increase.—In the last six years, the number of new practitioners of medicine in Great Britain and Ireland has greatly exceeded the usual prewar number. There were nearly 10,000 more physicians on the medical register at the end of 1927 than there were in 1917 and there has not been a corresponding increase in population in the British Isles in that period. The ratio of physicians to inhabitants is therefore much higher than ever before. Commenting on this fact in its educational number, the *British Medical Journal* says, however, that the scope of medical practice has widened meanwhile and many new openings for professional work have followed the growth of diagnostic, curative and preventive methods and the rapid development of administrative medicine. The average entry of medical students for the last thirteen years of the nineteenth century was about 1,800; for the next thirteen years about 1,400, and during the World War, even though many went to war, the number of medical students at home steadily grew larger. After 1919, however, the entries fell rapidly, and the number entered in 1927 was 1,214, whereas in 1920 the number was 2,531. The decline is an advantage, the editor says, because if the excessive entries of students that occurred during the postwar period had gone on, it would have led to an overstocking of the profession.

Government Services

Changes in Veterans' Bureau Personnel

The October U. S. Veterans' Bureau Medical Bulletin announces the following changes in personnel:

HOSPITALS

Dr. Julian B. Allen, resigned at Tuskegee, Ala.
Dr. Moreton H. Axline, transferred to Fort Harrison, Montana.
Dr. Frank L. Borglum, transferred to Fort Bayard, New Mexico.
Dr. Karl M. Bowman, transferred to Bedford, Mass.
Dr. Albert E. Brownrigg, transferred to Washington, D. C.
Dr. Walter Burrier, transferred to Bedford, Mass.
Dr. William J. Bytes, transferred to Fort Bayard, New Mexico.
Dr. Leo W. Chilton, transferred to regional office, Boise, Idaho.
Dr. Calvin E. Clay, transferred to Memphis, Tenn.
Dr. George Clymer, transferred to Bedford, Mass.
Dr. Samuel W. Crittenden, transferred to Bedford, Mass.
Dr. Louis B. Derdiger, transferred to Fort Snelling, Minn.
Dr. Robert B. Ford, resigned at Tuskegee, Ala.
Dr. Allen G. Fuller, transferred to Washington, D. C.
Dr. George H. Garrett, resigned at Palo Alto, Calif.
Dr. George M. Gebringer, transferred to Lake City, Fla.
Dr. Gustave P. Grabfield, transferred to Bedford, Mass.
Dr. Julius A. Kaplan, transferred to Bedford, Mass.
Dr. Glen D. Kimball, transferred to Charlotte, N. C.
Dr. James C. Kirby, transferred to Bedford, Mass.
Dr. Lane B. Kline, transferred to Sunmount, N. Y.
Dr. John M. Love, transferred to Walla Walla, Wash.
Dr. Henry C. Marble, transferred to Bedford, Mass.
Dr. John W. Meachen, transferred to Bedford, Mass.
Dr. Clarence Mehlhop, transferred to Edward Hines, Jr., Hospital, Maywood, Ill.
Dr. William T. Merrill, transferred to Bedford, Mass.
Dr. Clarence R. Miller, transferred to North Chicago, Ill.
Dr. Walter A. Monnich, resigned at Fort Snelling, Minnesota.
Dr. Edward K. Moore, transferred to Muskogee, Okla.
Dr. James E. Morrison, appointed at Memphis, Tenn.
Dr. Tarleton F. Moore, transferred to Hartford, Conn.
Dr. Lloyd H. Mott, appointed at Muskogee, Okla.
Dr. Clyde H. Pember, transferred to Tacoma, Wash.
Dr. John H. Prill, resigned at Waukesha, Wis.
Dr. Oscar J. Raeder, transferred to Bedford, Mass.
Dr. Henry E. Randolph, transferred to Edward Hines, Jr., Hospital, Maywood, Ill.
Dr. Theodore E. Schwarz, resigned at Aspinwall, Pa.
Dr. Charles E. Sisson, transferred to Knoxville, Iowa.
Dr. Harry C. Solomon, transferred to Bedford, Mass.
Dr. John J. Thompson, transferred to Bedford, Mass.
Dr. Wilbur C. Travis, appointed at Longport, L. I.
Dr. Karl F. E. Wegener, transferred to Edward Hines, Jr., Hospital, Maywood, Ill.
Dr. Maurice H. Wilkinson, appointed at Waukesha, Wis.
Dr. David L. Williams, transferred to Bedford, Mass.
Dr. Arthur R. Woods, transferred to Bedford, Mass.
Dr. Austin C. Wright, reinstated at Fort Bayard, New Mexico.
Dr. Nelson A. Young, transferred to Washington, D. C.

REGIONAL OFFICES

Dr. John W. Baldwin, appointed at Des Moines, Iowa.
Dr. Ernest J. Butzke, appointed at Jackson, Miss.
Dr. John F. Flynn, appointed at Chicago.
Dr. Herbert H. Howze, appointed at Little Rock, Ark.
Dr. John J. McNamara, appointed at Brockton, Mass.
Dr. James L. Miller, transferred to Louisville, Ky.
Dr. Alfred J. Ostheimer, appointed at Buffalo.
Dr. Arthur W. Schulz, appointed at Los Angeles.
Dr. John I. Taylor, resigned at Louisville, Ky.

Meeting of Council of Veterans' Bureau

The meeting of the medical council of the U. S. Veterans' Bureau, Washington, D. C., November 12-14, was presided over by Dr. Ray Lyman Wilbur, president of Leland Stanford University, California. Frank T. Hines, director of the bureau, told the council that some step is necessary to provide a larger supply of well trained physicians for the new hospitals that are being erected. General Hines asked the council why there was keen competition among physicians for positions as interns in civilian hospitals, whereas the bureau has difficulty in getting interns and has been forced to pay a higher salary than civilian hospitals. The council advocated that all veteran relief in the field be consolidated under a medical officer in charge. This policy is being tried to a degree in the Fort Snelling hospital, where there are regional office facilities also. It has proved satisfactory to date. The proposed legislation to provide a commissioned medical corps for the veterans' bureau did not pass Congress. The council formulated an alternative plan for stabilizing the medical service. The plan includes provisions for regular increases in salary, promotions on merit, and retirement based on contributions from the medical personnel on a basis of 5 per cent of their salaries. The council believes that there is no possibility of securing and retaining adequate medical personnel for the bureau unless some decisive action is taken to insure them a reasonable permanency in their work, with prospect of promotion commensurate with their service. It was recommended that more publicity be given to the opportunities in the veterans' bureau for the training of young physicians through contact with thousands of patients.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 27, 1928.

Conference on Tuberculosis

The fourteenth annual conference of the National Association for the Prevention of Tuberculosis was held this year later than usual in order to meet the wishes of the Canadian Tuberculosis Association, which has sent about thirty of its medical officers to study tuberculosis work in England and on the continent. The association is a unit in the highly organized public health service of this country. Its business is to educate the public in health matters with reference to tuberculosis in the home as well as in the dispensary and the sanatorium.

TUBERCULOSIS IN CANADA

Some information of great interest was supplied to the conference by the Canadian association. The deaths from tuberculosis in Canada have been reduced and provision for treatment has been greatly enlarged. In 1900 the death rate was 180 per hundred thousand, with not fifty beds available solely for the tuberculous. In 1914 the death rate was 108 per hundred thousand, with sanatorium bed accommodation of 1,840 beds. Last year the death rate was 81.6 per hundred thousand, and the institutions for the treatment of tuberculosis had 5,204 beds.

TUBERCULOSIS AMONG AMERICAN INDIANS

"The Occurrence of Tuberculosis Among Primitive Peoples" was the subject of the first sitting. Dr. R. C. Ferguson, director of the medical services of the Saskatchewan Anti-Tuberculosis League, described an investigation of tuberculosis among the Indians of the great Canadian plains carried out by the National Research Council of Canada. These Indians, who once occupied all the vast prairie country 800 miles by 400 miles, are three distinct nations. One was the warlike Blackfeet. At the advent of the white man the Indians occupying the great buffalo plains had no fixed place of abode but simply followed the buffalo herds in their migration. On this animal they depended almost entirely for means of subsistence. Unlike the Indians of the South, they did not cultivate corn or vegetables. The furs of the animal were worn as robes and blankets; the skins were tanned and used as covering for their lodges and their beds. From the horns were constructed spoons and ladles. The advent of the traders as early as 1738 did not tend to change the roving, warlike nature of the Indians. The acquiring of horses, firearms and ammunition only facilitated their hunt and warfare. They remained in this state until the extermination of the buffalo on the Canadian plains in 1879. In the winter of that year they were all practically on government rations. Thus, within one year, they changed from a carnivorous diet of fresh buffalo meat, with no salt or condiments, and some tea, to a largely farinaceous diet of white flour bannock, to which was added salt pork and tea. On this diet they remained for six or seven years. About 1887, fresh beef was added in winter on the Saskatchewan reserves. There was no mention of tuberculosis among the Indians until about 1860. After that time there was evidence of sporadic cases, but about 1884 it assumed the proportions of an epidemic. The extermination of the buffalo and the sudden change of food must be considered an important predisposing factor. The Indians gave up their roving life, sleeping in tents, and lived in log huts on the reserves, in communities. About 1916 a radical change in their mode of life took place. The most industrious of the young people broke away from the village unit and took to farming. This led to improved standards of living. But though it brought about a fall in the general death rate, there was no noticeable reduction in the death rate from tuberculosis. A question of the first importance is the effect of the infusion of white blood on resistance to tuberculosis. This process continued steadily during the era of the traders. The introduction of white blood seemed a potent factor in civilizing them but also increased their resistance to tuberculosis. The epidemic was now on the wane, but the mortality was still twenty times that of the surrounding white population. That the combination of good food, housing and sanitation did have a noticeable effect on morbidity has been observed in the Indian children in schools. Its effect on mortality from tuberculosis was evident. After three generations of tuberculization the surviving Indians were biologically strong.

Dr. Stephen J. Maher, chairman of the Connecticut State Tuberculosis Commission, New Haven, said that there was once a widespread belief that tuberculosis was a disease of "Caucasian" civilization and that its occurrence among primitive races was one of the penalties paid for contact with the white race. There was now good reason for believing that tuberculosis, in one form or another, had always been a disease of the Indians of North America. In the collections of the Massachusetts Historical Society, an Indian authority was given for the statement, "Before the English came among them there were two disorders from which the Indians most generally died —the consumption and the yellow fever." Dr. Maher disputed the doctrine that tuberculosis was a curse that the white race had given to primitive peoples.

THE PRINCIPLES UNDERLYING A SCHEME OF ANTITUBERCULOSIS MEASURES

Sir Robert Philip, professor of tuberculosis, University of Edinburgh, said that the principles which must form the basis of an effective antituberculosis campaign were simple. Many meritorious efforts against tuberculosis had suffered because of failure to give one or another principle its proper place or from imperfect correlation of the several principles. An infant was seldom, if ever, born tuberculous. Infection was for the most part contracted in childhood. This fact implied the scientific direction of preventive methods. The family physician, no less than the tuberculosis officer, had a duty at this point. Childhood was the period when clinical observation and the use of simple tests allowed the determination of the advent of infection almost to a moment. The supreme efficacy of physiologic (sanatorium) methods in raising individual resistance was now familiar. Yet they were compelled to ask whether the lesson of the sanatorium had been sufficiently applied in the preventive sphere. If the tuberculosis officer and the family physician were constant in insistence on the recreation of the home, and especially the nursery, on sanatorium lines, the danger of exposure to tuberculous infection in childhood would be reduced to a minimum. When would education authorities, instead of erecting special schools here and there for pronounced tuberculosis, run all schools on the physiologic lines, which placed developing life on a higher plane of resistance? It might be that further success would be achieved on lines of active immunization. But their present line of policy lay in enlightening the public regarding the broad facts of tuberculosis, in training the physician to watch scientifically for the advent of infection, to register the date of its discovery, to interpret the life history, and to take measures for increasing natural resistance. If, while maintaining sanatoriums and other institutions at the highest efficiency, they worked along these lines at every tuberculosis dispensary and in family practice, they might expect that in about a generation the need for curative institutions and places of segregation would correspondingly disappear. Already abundant signs pointed in that direction. Between 1902 and 1927 the mortality from pulmonary tuberculosis in London had decreased nearly 45 per cent.

Dr. G. Lissant Cox, chief tuberculosis officer of the Lancashire county council, said that a Framingham experiment was required

V 9
192

in England. That experiment was a systematic search, house by house, for cases of tuberculosis in a small town in America, and had remarkable results. Cases could be secured by early periodic health examinations of the whole population. The greater number of very early cases would always go undiscovered until periodic health examinations were instituted.

International Congress of Military Medicine in London

The fifth International Congress of Military Medicine and Pharmacy is to be held in London in May, 1929, and thirty-two nations will be represented. During the war with a view to affording the maximal benefit from the knowledge gained by each of the allied countries in the treatment of wounds, inter-allied surgical conferences were instituted and, as a result, a series of general rules for the treatment of all types of injury was formulated. The Belgian army medical service, considering that this collaboration should be continued in peace, took the initiative of holding an international congress of military medicine and pharmacy in 1921 at Brussels, to which all allied and neutral nations were invited, and twenty nations were represented. Two years later there was a congress at Rome attended by representatives of thirty-five nations. The third congress was held in Paris in 1925, and forty nations were represented; a fourth congress took place at Warsaw in 1927, at which thirty-two nations were represented. At the forthcoming congress the presidents of the honorary committee will be the first lord of the admiralty, the secretary of state for war, and secretary of state for air. An organizing committee has been formed, presided over by Lieut. Gen. Sir Matthew Fell, director general of the army medical services. The subjects to be discussed are: 1. Evacuation of sick and wounded by water and by air; the rôle of the medical services in combined operations; reporting countries, Great Britain and France. 2. Tropical fevers of short duration; reporting countries, Great Britain and Netherlands. 3. Wounds of blood vessels and their sequelae; reporting countries, Great Britain and Belgium. 4. The physical and chemical analysis of the glass and rubber articles employed by the medical services; reporting countries, Great Britain and Spain. 5. The standard of dental and physical fitness in the various military services; reporting countries, Great Britain and Cuba. An exhibition of medical equipment of the services and of drugs, dressings, surgical instruments and appliances will be held, and visits will be made to naval, military and air force stations, where demonstrations will be given. All medical officers, dental surgeons and pharmacists belonging to or having belonged to the forces of all nations admitted to membership of the League of Nations are invited to the congress, and also all officers belonging to organizations in association with the medical services. The subscription is fixed at $2.50 for men and $2 for women. Members should notify the secretary, Major A. D. Stirling, the War Office, Whitehall, London S. W. 1, of their intention to be present as early as possible before Jan. 1, 1929, and at the latest by February 1.

Sir Charles Tomes, Odontologist

Sir Charles Sissmore Tomes, F.R.S., F.R.C.S., the odontologist, has died at the age of 82. Like his father, he was a pioneer in the scientific advancement of dentistry. He was the oldest son of Sir John Tomes, also F.R.S., and F.R.C.S., who wrote, among other things, on the dental tissues of the marsupials. He was educated at Oxford. In 1866 he gained a first class in the School of Natural Science. He became a student at Middlesex Hospital, where his father was surgeon dentist. He published in rapid succession a series of important papers on the structure and development of the teeth in the batrachia, reptilia, ophidia and fishes, as well as one on the enamel organ of the armadillo. He practiced in conjunction with his father, edited the second edition of "Tomes's Dental Surgery," and was lecturer on anatomy and physiology at the Dental Hospital, where he was afterward surgeon and consulting surgeon. He married, in 1873, Lizzie Eno, daughter of Charles D. Cook, M.D., of Brooklyn, but had no issue.

PARIS

(From Our Regular Correspondent)

Sept. 26, 1928.

Assistants for the Health Services in the Colonies

Since the number of physicians sent to the colonies is still inadequate for the needs of the native populations, in view of the enormous distances to be traversed in these countries, together with the poor means of transportation, the minister for the colonies has decided to create an auxiliary personnel specially trained in the problems of hygiene and prophylaxis, which, under the direction of the physicians, will be charged with the uncovering of cases of epidemic disease, the application of measures of sanitary defense, the supervision of hygienic campaigns, and the like. Such assistants will be chosen from among the graduates of the higher schools and colleges, and candidates will be required to take a two-year course of spetial theoretical and practical training in one of the institutes of colonial medicine in Paris, Lyons, Bordeaux, Marseilles or Algiers. The course will be prepared by a committee, on which Professor Tanon will serve as chairman.

The Death of Prof. Albert Robin

Prof. Albert Robin died, September 25, in his eighty-second year, at Dijon, his native city, of Parkinson's disease and aphasia. He was unquestionably one of the most brilliant figures of contemporary French medicine. He began his career as assistant to the eminent chemist Baron Thenard, and during his whole life was inclined to consider biologic and pathologic problems from the chemical point of view; for example, he studied the chemistry of tuberculosis, the chemistry of cancer, and similar subjects. He regarded retardation of respiratory combustion as the essential factor in a tuberculous terrain, a conception that has not been generally approved. He contributed greatly to the organization of the campaign against tuberculosis, in which he placed greater reliance on the dispensaries and supervised domiciliary treatment than on the sanatoriums. In cooperation with Jacques Siegfried, he founded the first antituberculosis dispensary in France in connection with his service in the Hôpital Beaujon. He introduced in France the treatment of infectious diseases with colloidal metals. His progress was brilliant and rapid. He served successively as intern in the Hôpitaux de Paris, as hospital physician, as agrégé professor in the Faculty of Medicine, and became, in 1905, professor of clinical therapeutics at the Faculté de médecine, the chair having been specially created for him. He was a member of the Academy of Medicine and a grand officer of the Legion of Honor. His first distinction as chevalier of the order was conferred on him during the Franco-Prussian War of 1870, in which he served as a trooper.

The Approaching International Congress of Hospitals

The preparations for the first International Congress of Hospitals are being carried out in Paris by an international committee of which Dr. René Sand, technical adviser of the League of the Red Cross Societies, is the chairman. The headquarters of the committee are at 2 Avenue Velasquez. At the last meeting of the committee the duties of general secretary were performed by Dr. Lewinski Corwin of New York, assisted by Dr. Goldwater. They gave also an account of the organization of hospital services in the United States. In France, there are five regional *"unions hospitalières,"* which are united in a federation. On this committee, Germany was represented by Drs. Elsas, Grober, Philippsborn and Wirth; Belgium, by Dr. Sand; Canada, by Dr. F. Stephans; Cuba, by Drs. Joaquin

Martos and J. A. Ortiz; Denmark, by K. M. Nielsen and H. F. Ollgaard; the United States, by Drs. Clark, H. Lewinski Corwin and Goldwater; France, by MM. Brizon, Chennevrier, Gouachon and Guellet; Italy, by Professor Santo-Liquido; Mexico, by Dr. Pani; the Netherlands, by Dr. Mansholt; the Conseil international des infirmières, by Mlle. C. Reinmann, and the League of the Red Cross Societies, by T. B. Kittredge, Dzierskowski and C. Lillingston. The representatives of Hungary, Poland, Sweden, Switzerland and Czechoslovakia sent their regrets at being unable to be present. The coming international congress will be held at Atlantic City, June 13-15, 1929, where it is thought that 40,000 persons may participate in the meetings. The congress will hold six sessions. At the opening session, a British speaker will define the essential functions of hospitals (treatment, social assistance, prophylaxis, training of physicians and nurses, researches); he will emphasize the gradually enlarging rôle of hospitals in general. During the five remaining sessions, the congress will discuss: the effects of the general plan of a hospital on the cost of construction, on the per diem cost of a patient's maintenance, and on the efficacy of treatment; the means of assuring sufficient resources to hospitals; the rôles of public and of private hospitals, respectively; psychiatric hospitals; hospitals for chronic patients, and, finally, the creation of an international association of hospitals. The preparation of the paper on the last mentioned topic has been entrusted to M. Brizon of Lyons. The papers will be distributed, a month in advance, in trilingual form: in French, English and German. An international exhibit, divided into a scientific section and a commercial section, will be held at the same time as the congress.

ITALY

(From Our Regular Correspondent)

Sept. 15, 1928.

Work of the Rural Schools in the Antimalaria Campaign

A census of malaria patients in the Agro Romano taken in 1926 showed that, of the 2,546 persons affected with the fever, 763, or about 30 per cent, were children under 10 years of age. The authorities of Rome decided, therefore, to entrust to the school teachers the task of supplying quinine prophylactically to the children with a predisposition to malaria. As a result of this provision, splenomegaly, which in 1926 was present in about 21 per cent (353 cases) of the 1,606 children examined, dropped, in 1927, to about 12 per cent (595 cases in the 3,281 pupils examined). Furthermore, the percentage of malaria in the schools has not exceeded 1.1. In view of these results, the government has, this year, kept the rural schools in the Agro Romano open during the whole summer.

Joint Convention of Medical Societies

A joint convention held recently at Roncegno (Val Sugana) comprised three societies: the Società di sessuologia ed eugenetica, the Associazione professionale dei dermatologi, and the Associazione ultra-violetta. The purpose of the meeting was to discuss the results of the studies and experiments carried out by the three societies in the field of race betterment. Professors Baglioni, Piccardi and Spolverini presided. Professor Piccardi, in his introductory address, emphasized the advantages secured from antivenereal prophylaxis as instituted by the government, not only with regard to recent types but also with reference to late manifestations of syphilitic infection.

Professor Artom of Novara presented a paper on the subject "The dermosyphilologist and the aid he affords to mother and child." The speaker discussed the present Italian legislation on the subject, with special regard to the work that the dermosyphilologist should do to aid in the solution of the problems of congenital syphilis and the venereal diseases of childhood. Professor Artom declared himself in favor of the creation of prematrimonial consultation centers, the treatment of syphilitic women, and the admission of young mental degenerates into suitable institutions for their moral regeneration. He suggested that a specialist in dermosyphilography should always be included as patron on the committee in charge of child and maternal welfare work.

Dr. Sberna of Florence spoke of the bad economic situation of the professional men attached to the antivenereal prophylaxis service. He confirmed the diminution in Italy of syphilis and venereal disease in general, which is the outcome of the meritorious services of the physicians attached to the prophylaxis services of the state and the communes, and emphasized that the administrations do not always appreciate as they should the work of these physicians and sometimes do not assure them as good economic conditions as they do the health officers attached to other branches of the public health service. A resolution to that effect was accordingly passed by the conventionists.

Professor Baglioni, physiologist of the University of Rome, dealt with heredity, reviewing all the theories past and present on the subject and referring to the new field of experimental research on the germ cells. Professor Casagrandi of Padua discussed these researches more at length.

Professor Verotti of Catania presented the subject of the effects of syphilis on heredity, not only with regard to the direct offspring but also with reference to the third and fourth generations, in which various organs may be affected, more particularly the glands of internal secretion.

Professor Spolverini, director of the Clinica Pediatrica in Rome, spoke of the effects of ultraviolet rays on the development of the child. Other speakers treated questions pertaining to the protection of the woman in the sexual life.

The climatic resort of Saint Vincent, in Val d'Aosta, was chosen as the place of the next meeting in 1929.

Aid for Illegitimate Children

By a recent decree the regulations for the aid of abandoned illegitimate children were established. The control of this service has been entrusted to the Opera nazionale per la protezione della maternità and dell'infanzia. This society will establish, for each province of the realm, the number of rooms to be set aside for the admission of the children to be nursed, and the amount of remuneration to be granted the nurses. The society in question will assume only the supervision of the *goutte de lait*. These must have a healthful location and be provided with modern means for the diagnosis of syphilis and other infectious diseases; isolation wards; and apparatus for the pasteurization of milk. The management of the servizio di assistenza interna in the institutes will be entrusted to the sanitary assistants holding a diploma in puericulture. Illegitimate children may be admitted to the *goutte de lait* on the written or verbal request of the mother or of an obstetrician. In the latter case, an inquiry will be instituted to ascertain the maternity of the child and an attempt will be made to persuade the mother to recognize and raise her own child, adequate aid for that purpose being guaranteed her.

Comparative Statistics of Europe

The Istituto centrale di statistica has completed a comparative study on certain demographic data pertaining to the principal countries of Europe. For 1927, Italy had the largest excess of births over deaths of any country—namely, 457,000. In Germany, the corresponding figure was 408,000; in England, 179,000, and in France, 65,000. The number of marriages contracted in France had decreased, but in the other countries reviewed there was an increase. The birth rate is declining in all the countries considered. In Italy, the birth rate dropped from 27.2 per thousand population in 1926 to 26.9 in 1927; in England, from 17.8 to 16.7; in France, from 18.8 to 18.1; in

Germany, from 19.5 to 18.3. The death rate for Italy declined from 16.9 per thousand population in 1926 to 15.9 in 1927; in France, from 17.5 to 16.5; in England, the death rate rose from 11.6 to 12.3, and in Germany, from 11.5 to 12.0 per thousand population.

The Italian Red Cross Society

In consequence of the approval of the new organization of the Italian Red Cross Society, the extraordinary administration of the society has ceased and Sen. Filippo Cremonesi has been appointed *presidente generale.*

Mortality Statistics of Insured Persons

The Istituto centrale di statistica has begun the compilation of the mortality statistics of insured persons, based on data to be supplied by the Istituto nazionale delle assicurazioni and by the private Italian life insurance companies. The elaboration of the data will be in the hands of a commission of specialists. It is said that the study will comprise the period from 1900 to the present, and that it will consider separately the three subperiods: the prewar period, the war period, and the postwar period.

Exhibit on the History of Science

Under the auspices of the Istituto di storia delle scienze, an exhibit of apparatus, instruments and prints illustrating the history of the development of science will be held in Florence in 1929. The exhibit will be divided into five sections: natural sciences, medical and pharmaceutic sciences; mathematical, physical and chemical sciences; astronomical and geographic sciences, and technology.

Hygienic Milk Production

According to a new regulation, communal and provincial veterinarians must exercise sanitary control over milch cows. The personnel detailed for milking must be free from infectious diseases, and the milking process itself must be carried out in accordance with established hygienic regulations. Immediately after milking, the milk must be strained and cooled in suitable vessels to a temperature of 15 C. Central pasteurization plants will be established. Milk for children and the aged must be selected and treated with special care.

BERLIN

(From Our Regular Correspondent)

Oct. 6, 1928.

Meeting of the German Pediatric Society in Hamburg

(Concluded from page 1564)

Dr. Loeschke of Mannheim presented a paper on "The Pathology of Pneumonia in Children," in which he brought out that the different structure of the body of the child and the adult occasioned differences in the manifestations of pneumonia. In the child, owing to the better ventilation of the apexes, pneumonia of the apex is rare. The structure of the lung tissue makes it possible for a pneumonic process to spread from one air sac to the other and from lobule to lobule. The small size of the bronchial tree in the child makes it easier for the bronchi to become closed and causes the appearance of atelectases in all pathologic processes. The differences in expansion occasioned by the atelectases lead to interstitial emphysema, which, when associated with infection, becomes interstitial pneumonia. Likewise, the action on the lung tissue, proceeding from the focus of infection, affects relatively larger portions of the lung in the child than in the adult. For that reason, severe and complicated lung diseases are more frequent in the child than in the adult, especially since the tendency toward aspiration favor the evolution of severe aspiration pneumonia. In a group of thirty-two children under 6 months of age, there were fifteen with aspiration pneumonia. Congenital pneumonia is found only in connection with pneumonia in the mother; intra-uterine pneumonia may develop following aspiration of liquor amnii that has been contaminated by meconium. If the lungs expand properly after birth, aspirated substances are usually eliminated within twenty-four hours. But in weakly and in premature infants such substances may give rise to pneumonic reactions even after two weeks. The forms of pneumonia that are associated with various children's diseases vary with the site and the extension; for example, pertussis pneumonia has its seat in the bronchioles, with a tendency to bronchiectasis in the respiratory bronchioles. In influenzal pneumonia, the influenza bacillus is only of secondary importance. Diphtheria seldom leads to diphtherial pneumonia, but more frequently to descending phlegmons due to diphtheria bacilli. Staphylococcus infections are characterized by the tendency to abscess formation. Streptococcus infections manifest themselves usually as interstitial processes. With respect to the pneumococci, the real pneumonia agents, the significance of the attempted division into groups does not appear assured. Lobar pneumonia and bronchopneumonia are often difficult to distinguish anatomically. An essential difference appears to be that lobar pneumonia with distended alveoli takes on a hypertelectatic form, while bronchopneumonia is dystelectatic or atelectatic, the latter doubtless because the onset in the bronchioles blocks the alveoli from the start. Lobar pneumonia must probably be conceived of as a hyperdynamic reaction in an organism sensitized by previous infections. The pneumococcus sets up then a high-grade inflammation at a certain point in the lung tissue and a fluid exudate rich in pneumococci, which, through the respiratory process, is carried to adjacent bronchioles and gradually takes possession of a whole lobe. Therefore, all stages of lobar pneumonia are found close together—in the center the oldest stages, and on the periphery the most recent. In the exudate a network of fibrin is stretched, which brings about an anemic condition in the lung tissue; later shrinking causes the lungs to be filled with blood and brings on the clinical crisis. In connection with the shrinking of the fibrin, clots are formed, which are coughed up.

L. F. Meyer of Berlin discussed "The Classification and Treatment of Pneumonia in Infants." At present pneumonia is the second most frequent cause of death in infants. In attempts to classify the pneumonias of infancy the division according to etiology has failed. The causative agents found, mostly pneumococci of the various types, did not bear any relation to the nature and gravity of the clinical picture. It appears that the actual causative agent of the disease can be ascertained only by the puncture of the diseased lung tissue. The author's own observations led to the discovery of pneumococcus, type I, which must be considered an exogenous new infection. Since the etiologic classification has failed, possibly a clinical classification that considers the time factors would be more applicable. It may be conceived that pneumonia that develops rapidly is of hematogenic origin, and that pneumonia that develops slowly arises by way of the lymph glands or the bronchial tree. Possible evidence for the participation of the lymph glands in the origin of pneumonia may be found in the swelling of the bronchial glands on the first day of the illness, from which, then, the infiltration of the lung tissue proceeds. The onset of pneumonia, whether rapid or slow, is no indication of the course it will take. Independent of the nature of the onset, pneumonia usually runs its course within nine days, and the most deaths occur on the second or third day of illness. An early death appears usually as an anergic reaction in patients with asthenic pneumonia and as a hyperergic reaction in patients with suppurative pneumonia. The fever of bronchopneumonia, as an expression of the varying state of immunity, may be divided into five different types. The clinical classification of the pneumonias as proposed by Nassau is still the most useful. In addition to the six different courses of evolution heretofore recognized, two further types of pneumonia, the

asthenic and the asphyctophilic, must be added. Half of the pneumonias run their course as a condition localized in the lung, with a relatively favorable prognosis. The cardiac type with a mortality of 45 per cent, the atonic type with a mortality of 75 per cent, and the toxic type with a mortality of 100 per cent are the more unfavorable types of bronchopneumonia. Not only the involvement of other organs but also the lung process itself influences the course of the disease. Most favorable are the processes in the right upper lobe; least favorable, the bilateral processes and involvement of the pleura. The treatment should be adapted to the various courses the disease takes. Isolation to prevent superinfections, individual care, narcotics, and fresh air are indicated in all cases. Cordials are of value in the cardiac type; blood transfusions are of doubtful value, and are contraindicated in circulatory insufficiency. Oxygen is useful in the pulmonary and in the asphyctophilic types. In marked cyanosis, venipuncture is in order. In atonic types, sugar infusions have been recommended. In intestinal types, fasting instituted as early as possible and temporary feeding with sugar solution will often save lives. More recently, the inducement of an artificial pneumothorax to rest the inflamed lung has been found useful. Chemotherapy has no definite value. In the future, better results may possibly be expected from specific serotherapy.

Engel of Dortmund dealt with the pathogenesis of lobar pneumonia, which, he stated, cannot be regarded as a disease of a lobe of the lung. What the pathologic anatomist presents is only the final condition existing after the process has run its course. Roentgenographic observations and fever charts are evidence for the belief that, even in infancy, lobar pneumonia is by no means rare. In connection with the roentgenologic diagnosis it must be remembered that, owing to the fact that infiltrated portions of the lungs are covered over with air-containing tissues, the roentgenogram obtained does not reflect the actual anatomicopathologic condition. Only the processes in the right upper lobe yield distinct roentgenologic changes. In every other site of the disease, the results may be slight or nil. In the pathogenesis of pneumonia, the general infection is the essential thing, whereas the lung involvement can be regarded almost as an accidental event. Lobar pneumonia is a condition of a general, toxic nature, which, as a rule, is associated with involvement of the lung. The entrance of pneumonia into the lung takes place probably in some cases by way of the lymph glands. Evidence for this conception is the rarity of pneumonic changes in the left upper lobe, the regional lymph glands of which are peculiar in that, in contrast with the glands belonging to the other lobes, they lie outside the lung tissue.

THE GENERAL PLAN OF A CHILDREN'S HOSPITAL

The transactions of the last day of the congress brought a number of papers on the construction, equipment and organization of a children's hospital.

Professor Feer of Zurich, Switzerland, presented a communication explaining that the architect, the physician, the head nurse and the hospital administration should work hand in hand on this matter. Of paramount importance is the organization of measures for the prevention of the spread of infectious diseases. There should be an absolutely separate department for infants, with a special milk kitchen, room for wetnurses, and the like. There should be a bed for each thousand population of the region served. In small cities, one or two wards of the general hospital should be under the directorship of a pediatrician. In cities above 40,000 population, there should be a separate children's hospital, associated, if possible, with a general hospital. In large cities, there should be, in addition, centrally located policlinics. An isolation house, and a quarantine station, numerous cubicles and an observation center must always be provided. A low style of architecture facilitates the bringing of children into the open air. The corridor system is to be preferred. All sickrooms should have a balcony or a veranda. The size of the rooms and anterooms should be on the same basis as in hospitals for adults. In cities the creation of a roof garden has advantages. Many recommendations were made with respect to the best material for the building, the floors, the walls, and the like. The rooms should, as a rule, accommodate four patients. There should be, however, some rooms for only two patients. The beds should be in three sizes. Horsehair is the cheapest filling material for mattresses, if its durability is taken into account. Infants should, as far as possible, be kept separate from older children. There should be a nurse for every three children. If possible, there should be an operating room in charge of a surgeon. There should be a large milk kitchen and a pharmacy. The laundry should be a separate structure.

Professor Pirquet of Vienna explained the new construction of glass beds, which, similar to the covers in the chemical laboratories, are combined in sets of six each and afford great protection against the spread of infections.

Professor Nobel of Vienna presented a paper on the economic organization and management of children's hospitals. The director should always be a physician who possesses not only medical but also administrative ability. The assistant physicians should serve several weeks in the capacity of nurses before they are definitely added to the staff. For nurses the best qualified persons obtainable should be employed. The eight-hour working day does not present disadvantages if, during that period, intensive work is done. To that end, nurses must be trained to work systematically. The organization of the work should be planned on an exact time basis. For example, good care of an infant requires four hours, indifferent care, two hours, each day; that is to say, ten nurses would be required for the adequate service of twenty infants. Of 500 nursing hours, 357 will be devoted to attendance on the patients, 100 hours to housework, and forty-three hours to clerical work. The night service should shift every two weeks. Nurses should be trained likewise in welfare work and in the development of moral character. For economic reasons, therapeutic centers should be established for convalescent children. In such centers a school child requires 1.85, and a child of preschool age 2.5, hours of care each day. The per diem cost per child is only 4.65 shillings (65 cents), of which amount 1.8 shillings (25 cents) may be figured for care and attendance.

Professor Schlossmann of Düsseldorf took the stand that children with infectious diseases are best cared for in a hospital, provided the arrangements are such that the danger of secondary infections and mixed infections is no greater than in the private home. In the construction of hospitals for infectious diseases it is difficult to be economical, but no superfluous demands should be made on the communes or cities. The department of infectious diseases must always be in charge of a pediatrician. In the case of epidemics, separate departments for adults may be established. The number of beds required for children with infectious disease varies with the ebb and flow of epidemics, with the season, and with the nature of the population. The supply of beds, however, should be great enough so that, as far as possible, all patients with infectious disease may be admitted. For a city of 500,000 inhabitants, 500 beds are needed for such cases. In the construction of the hospital, it is not advisable to create rigid departments for the various infectious diseases; it is more feasible if each department may be used for any infectious disease. The architectural construction of departments for infectious diseases must always be the very best. If the construction is of the highest grade, several infectious diseases may be treated in a multistoried building. There should, however, be an admission department for uncertain cases and mixed infection.

V 91
192

Marriages

LEWIS MCCLURE CAMPBELL, Eskdale, W. Va., to Miss Virginia L. Dunn of Red Sulphur Springs, October 31.

FREDERICK T. FOARD, JR., Stockton, Calif., to Miss Helena Krause of Knoxville, Tenn., August 6.

HENRY JERRY JOHN, Cleveland, to Miss Betty Louise Beaman of Cincinnati, October 9.

PHILIP W. PLACE, Boston, to DR. ETHEL F. WINSTON of Wyoming, Ohio, October 12.

LESLIE PHILLIPS HERD to Miss Marian Shepherd, both of Cleveland, October 19.

Deaths

Edmund W. Weis ✠ De Land, Fla.; Missouri Medical College, St. Louis, 1877; member of the House of Delegates of the American Medical Association, 1908-1910; for many years secretary of the Illinois State Medical Society; at one time physician in charge and teacher in the training school for nurses of the Ryburn Hospital, Ottawa, Ill., and lecturer in the training school for nurses, St. Mary's Hospital, La Salle, Ill., and the People's Hospital, Penn, Ill.; formerly health officer of Ottawa, La Salle, Peru and Oglesby, Ill., and county coroner; aged 72; died, November 3.

Ernest G. Bingham ✠ Lieut. Col., M. C., U. S. Army, Jefferson Barracks, Mo.; Medical Department of the University of Alabama, Mobile, 1901; entered the army as assistant surgeon in 1903, and was promoted through the various grades to that of lieutenant colonel in 1917; aged 52; died, May 28, at the Walter Reed General Hospital, Washington, D. C., of carcinoma of the stomach with metastasis to the liver.

James Blaine Montgomery ✠ Major, M. C., U. S. Army, San Francisco; Harvard University Medical School, Boston, 1915; general superintendent of the Army Transport Service, Fort Mason; served during the World War; was accepted as a first lieutenant in the medical corps, U. S. Army, in 1918 and was promoted to major in 1919; aged 39; died, October 14, at the Letterman General Hospital, of infantile paralysis.

Milton Randolph Regan, Mena, Ark.; Chicago Homeopathic Medical College, 1889; Hahnemann Medical College and Hospital, Chicago, 1905; formerly member of the Arkansas Homeopathic Board of Medical Examiners; at one time president of the bank, school board and board of health of Eureka Springs; aged 67; died, May 24, of carcinoma of the bladder.

James Henry Davenport, Providence, R. I.; University of Vermont College of Medicine, Burlington, 1885; Harvard University Medical School, Boston, 1887; member of the Massachusetts Medical Society; aged 66; on the staff of the Jane Brown Memorial Hospital, where he died, October 15, of metastatic disease of the bones, probably malignant.

Antonio Fanoni ✠ New York; University of Naples, Italy, 1893; formerly instructor at the New York Post Graduate Medical School; on the staff and trustee of the Italian Hospital; trustee of the United Hospital Fund; was decorated by the king of Italy; aged 64; died, November 3, of coronary thrombosis and arteriosclerosis.

John George O'Leary, Kingston, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1913; member of the Medical Society of the State of New York; on the staff of the Benedictine and Kingston hospitals; aged 54; died, October 19, of interstitial nephritis, myocarditis, arteriosclerosis and anemia.

Chester Ford Duryea ✠ Brooklyn; Jefferson Medical College of Philadelphia, 1901; member of the American Radium Society; served during the World War; formerly on the staffs of the Wyckoff Heights Hospital, Caledonian Hospital and the Kings County Hospital; aged 50; died, November 7, of sarcoma of the liver.

Edmund Warrill Carter, Thomaston, Ga.; University of Georgia Medical Department, Augusta, 1906; member of the Medical Association of Georgia; served during the World War; aged 46; died, October 26, at the Griffin (Ga.) Hospital, of injuries received when the automobile in which he was driving overturned.

William Charles Wilson ✠ Tacoma, Wash.; Northwestern University School of Medicine, Chicago, 1907; served during the World War; formerly health officer of Polk County, Minn.; on the staffs of the Tacoma General and St. Joseph's hospitals; aged 46; died suddenly, September 21, of cerebral hemorrhage.

William Hessert ✠ Chicago; Northwestern University Medical School, Chicago, 1892; formerly lecturer on surgery at his alma mater; member of the Western Surgical Association; on the staffs of the Grant and Alexian Brothers' hospitals; aged 57; died, November 10, of pneumonia.

Nannie Lee Winn, Clayton, Ala.; Johns Hopkins University School of Medicine, Baltimore, 1906; member of the Medical Association of the State of Alabama; associate director of child hygiene, Tennessee Department of Health; was instantly killed, September 27, in an automobile accident.

Sidney McLemore Alexander, Abilene, Texas; Louisville (Ky.) Medical College, 1901; member of the State Medical Association of Texas; served during the World War; formerly on the staff of the Alexander Sanitarium; aged 51; died, September 5, of cardiorenal disease.

Katherina Evseroff Maryson, New York; Woman's Medical College of the New York Infirmary for Women and Children, 1895; for twenty years medical inspector of the city health department; aged 58; died, October 25, at the Montefiore Hospital, of heart disease.

Boyd Alfred Emery, Dunningsville, Pa.; Jefferson Medical College of Philadelphia, 1878; member of the Medical Society of the State of Pennsylvania; past president of the Washington County Medical Society; aged 76; died, September 25, at the Washington (Pa.) Hospital.

Francis Marion Harrell, Cairo, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1881; also a dentist; formerly demonstrator of anatomy, University of Illinois College of Medicine, Chicago; aged 73; died suddenly, September 25, of heart disease.

Walter Adgate Warfield, Alexandria, Va.; University of the South Medical Department, Sewanee, Tenn., 1905; member of the Medical Society of Virginia; formerly on the staff of the Alexandria Hospital; aged 44; died, October 24, of pneumonia.

Samuel Henry Rothrock, Reedsville, Pa.; Cincinnati College of Medicine and Surgery, 1882; member of the Medical Society of the State of Pennsylvania; formerly member of the state legislature; aged 76; died, September 21, of heart disease.

William Boyd Brigman, Milledgeville, Ga.; Medical College of Virginia, Richmond, 1916; served during the World War; aged 36; died, September 20, at the U. S. Veterans' Hospital, number 63, Lake City, Fla., of pneumonia.

John D. Shull, Baltimore; College of Physicians and Surgeons, Baltimore, 1877; member of the Medical and Chirurgical Faculty of Maryland; aged 77; died, October 23, at the Mercy Hospital, of carcinoma of the urinary bladder.

Chesney L. Dutton ✠ Eugene, Ore.; University of Colorado School of Medicine, Denver, 1901; member of the Idaho State Medical Association; aged 54; died, October 15, at the Pacific Christian Hospital, of pernicious anemia.

John Thomas Pattillo, Langdale, Ala.; Atlanta (Ga.) Medical College, 1891; member of the Medical Association of the State of Alabama; served during the World War; aged 57; died, October 2, of heart disease.

Thomas Lachlin Taylor, Strasburg, Colo.; Beaumont Hospital Medical College, St. Louis, 1888; aged 69; died, October 5, at St. Luke's Hospital, Denver, of internal hemorrhage due to inflammation of the pancreas.

Wellington G. Grove, Buffalo; University of Buffalo School of Medicine, 1895; aged 62; died, October 19, at the J. C. Blair Memorial Hospital, Huntington, Pa., of diabetes mellitus and abscess of the chest.

Charles Boyd, Savannah, Ga.; Atlanta Medical College, 1877; aged 72; was found dead, October 9, as the result of phenol (carbolic acid) poisoning and self-inflicted wounds which severed arteries in his wrists.

Leon K. Graber, Harrisburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1879; member of the Medical Society of the State of Pennsylvania; aged 70; died, September 2, of endocarditis.

James Lefferts Cornell, Centerville, Md.; Long Island College Hospital, Brooklyn, 1889; Medical Department of Columbia College, New York, 1890; aged 67; died, October 31, of angina pectoris.

J. P. Blount, Denton, Texas (licensed, Texas, under the Act of 1907); formerly member of the state legislature; at one time bank president; aged 79; died, October 9, at Savannah, Mo., of carcinoma of the left side of the face and lower lip.

Bernard Ford Lowry, Cleveland; Western Reserve University School of Medicine, Cleveland, 1913; member of the Ohio State Medical Association; aged 44; died, October 21, of pneumonia.

Rollo James Grimes, Kankakee, Ill.; Eclectic Medical Institute, Cincinnati, 1903; Spanish-American War veteran; on the staff of the Kankakee State Hospital; aged 53; died, October 7.

Christian Peterson, Owatonna, Minn.; Illinois Medical College, Chicago, 1907; member of the Minnesota State Medical Association; formerly a druggist; aged 71; died, September 23.

Edwin Daniel McKinley, Madison, Wis.; Washington University School of Medicine, St. Louis, 1925; on the staff of the Wisconsin General Hospital; aged 29; died, October 6.

Otto Karl Peters ✠ Galveston, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1899; aged 55; died, May 6, of heart disease.

Joseph Harold Holt, Sherman, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1904; aged 50; died, September 16, of cerebral hemorrhage.

Joseph Robert Schofield, Corona Del Mar, Calif.; Northwestern University Medical School, Chicago, 1904; aged 60; died, October 3, of cerebral hemorrhage.

Mira Herrick Atwater, Cleveland; Cleveland Homeopathic Medical College, 1906; aged 60; died, August 22, of myocarditis, cerebral hemorrhage and hypertension.

James Reynolds, Upper Stewiacke, N. S., Canada; Dalhousie University Faculty of Medicine, Halifax, 1900; died, July 6, of chronic nephritis.

Lolita Day Bew Fenton, Oakland, Calif.; College of Physicians and Surgeons of San Francisco, 1899; aged 57; died, May 1, of arthritis.

J. A. Bell, Naperville, Ill.; Hahnemann Medical College and Hospital, Chicago, 1879; aged 90; died, September 22, at Milwaukee, of senility.

Abraham Litvin, Chicago; Bellevue Hospital Medical College, New York, 1896; aged 60; died, November 9, of a self-inflicted bullet wound.

Marion A. Shafer, Grand Rapids, Mich.; Detroit Medical College, 1873; Civil War veteran; aged 90; died, October 21, of cerebral hemorrhage.

William Wesley Lightfoot, Thackerville, Okla.; University of the South Medical Department, Sewanee, Tenn., 1907; aged 46; died, May 8.

William M. Spratlin, Atlanta, Ga.; Jefferson Medical College of Philadelphia, 1876; aged 76; died, September 27, of mitral regurgitation.

Daniel MacH. McKay, Jr., White Sulphur Springs, Mont.; Marion-Sims College of Medicine, St. Louis, 1897; aged 53; died, September 10.

Reuben Hayne Poole, Douglasville, Ga.; Southern Medical College, Atlanta, 1893; aged 58; died suddenly, October 5, of heart disease.

Anna White Marquis, Boonton, N. J.; Syracuse University College of Medicine, 1902; aged 60; died, May 28, of Paget's disease.

Marion Carrol Dale, McLeansboro, Ill.; Chicago Medical College, 1874; aged 78; died, October 3, at St. Elizabeth's Hospital, Danville.

Mangis M. Boulton, Chattanooga, Tenn.; Chattanooga Medical College, 1897; aged 59; died, September 23, of pneumonia.

Frank Lincoln Wilmeth, Lincoln, Neb.; Lincoln Medical College, 1894; aged 66; died, September 13, of diabetes mellitus.

David C. Donan, Sr., Three Springs, Ky.; Kentucky School of Medicine, Louisville, 1859; aged 92; died, October 19, of senility.

Thomas J. Green, Salem, Ill. (licensed, Illinois, 1878); Civil War veteran; aged 82; died, October 26, of arteriosclerosis.

Harley K. Dunklee, Denver; Hahnemann Medical College and Hospital, Chicago, 1887; aged 67; died, August 27.

Dennis Lang Thomas, Lula, Ga.; College of Physicians and Surgeons, Baltimore, 1892; died in October.

Robert Locke Cowan, Salisbury, N. C. (licensed, North Carolina, 1870); aged 78; died, September 26.

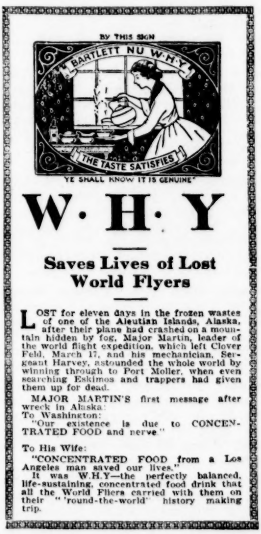
Bureau of Investigation

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food, Drug and Insecticide Administration of the United States Department of Agriculture

Lifo Gland Tablets.—The Lifo Medicine Company of Columbus, Ohio, in April, 1927, consigned to a concern in Philadelphia a quantity of "Lifo Gland Tablets" that federal officials declared were misbranded. The therapeutic claims made for the product were declared false and fraudulent and the name itself was declared false and misleading, since it contained ingredients other than glands. In September, 1927, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 15582; issued October, 1928.*]

W H Y.—A quantity of "W H Y," labeled as having been prepared by the Bartlett Nu Products Corporation, Pasadena, California, was being sold and offered for sale in the District of Columbia by the Health Food Center, and federal officials at Washington declared that the preparation was misbranded. When analyzed by the Bureau of Chemistry W H Y was found to consist essentially of the water-soluble constituents of caramelized cereals dissolved in water. The claims on the trade package, that the stuff aids digestion, assimilation and elimination, that it was a health-sustaining food, that it was recommended by physicians and dietitians everywhere, that it was "the cup of life and would feed your glands and give you strength," etc., were declared to be false and fraudulent. In January, 1928, Albert H. Beachley of Washington, D. C., who claimed the product, admitted the allegations of the libel, and judgment of condemnation and forfeiture was entered and the court released the product to Beachley on payment of the costs and execution of a bond, conditioned in part that the stuff be not sold or otherwise disposed of under fraudulent claims.—[*Notice of Judgment 15579; issued October, 1928.*]


BY THIS SIGN
BARTLETT NU W.H.Y.
THE TASTE SATISFIES
YE SHALL KNOW IT IS GENUINE
W·H·Y
Saves Lives of Lost World Flyers
LOST for eleven days in the frozen wastes of one of the Aleutian Islands, Alaska, after their plane had crashed on a mountain hidden by fog, Major Martin, leader of the world flight expedition, which left Clover Feld, March 17, and his mechanician, Sergeant Harvey, astounded the whole world by winning through to Port Moller, when even searching Eskimos and trappers had given them up for dead.
MAJOR MARTIN'S first message after wreck in Alaska:
To Washington:
"Our existence is due to CONCENTRATED FOOD and nerve"
To His Wife:
"CONCENTRATED FOOD from a Los Angeles man saved our lives."
It was W.H.Y.—the perfectly balanced, life-sustaining, concentrated food drink that all the World Fliers carried with them on their "round-the-world" history making trip.

Phospho-Lecithin.—Henry K. Wampole and Company, Inc., shipped from Philadelphia to Los Angeles in October, 1927, a quanity of "Phospho-Lecithin" that the United States officials declared was misbranded. Analysis of a sample of the article by the Department of Agriculture showed that it consisted essentially of sodium, potassium, calcium and strychnine glycerophosphates, lecithin and sugar in dilute alcohol. Such claims as that the product was a "nerve food," that it would build up nerve tissue, that it was indicated in nervous prostration, nerve exhaustion, nervous debility, hysteria and various other conditions, that it would check sweating due to nervous debility and was a restorative after typhoid fever, etc., were declared

false and fraudulent. In February, 1928, Henry K. Wampole and Company, Inc., admitted the allegations and judgment of condemnation and forfeiture was entered; the product was ordered released to the claimant on payment of the costs and the execution of a bond, conditioned that the preparation be relabeled truthfully.—[*Notice of Judgment 15574; issued October, 1928.*]

B-L (Blud-Life).—The Blud-Life Company of Pulaski, Virginia, shipped in October, 1927, a quantity of "B-L (Blud-Life)" to Columbia, South Carolina. The government charged that the stuff was misbranded. When analyzed, B-L was found to consist essentially of epsom salt and water, with small amounts of phosphate, salicylate, iron and strychnine and red coloring matter. The government charged that the claim that B-L was a fine tonic for children, that might be "given with perfect safety" and contained nothing "to harm the most delicate child," was false, while the therapeutic claims on and in the package were false and fraudulent. In December, 1927, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 15567; issued October, 1928.*]

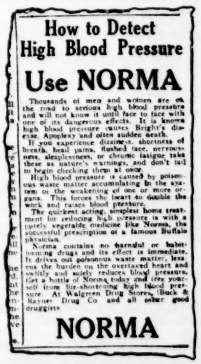
Depurativo Gandul.—The Arecibo Drug Company of Arecibo, Porto Rico, shipped a quantity of "Depurativo Gandul," which the federal authorities, in November, 1927, declared was misbranded. When analyzed by the government chemists, Depurativo Gandul was found to consist essentially of alcohol, potassium iodide, honey, plant extractives and water. The preparation was described as the "last word of science in its effort to treat diseases of the blood," and it was stated that the stuff would efficaciously treat syphilis, scrofula, eczema, herpes and other diseases of the skin due to impurities of the blood. These claims the government charged were false and fraudulent and in December, 1927, and February, 1928, respectively, judgments of condemnation and forfeiture were entered and the court ordered that the product be destroyed.—[*Notice of Judgment 15555; issued October, 1928.*]

Ferrasal.—A quantity of "Ferrasal," manufactured by the Crown Remedy Company of Dallas, Texas, was shipped by M. Arensburg, Inc., of New York City from New York to New Orleans in February, 1928. Government officials charged that the product was misbranded. When analyzed, the preparation was found to consist essentially of baking soda (56 per cent), magnesium carbonate, iron oxide, a tartrate and starch. It was sold as a remedy for acute indigestion, headaches, dysentery, constipation, kidney and bladder trouble, and various other conditions. The claims made were declared false and fraudulent and in April, 1928, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 15570; issued October, 1928.*]

Pildoras Matricura, Cordial Matricura and Filarysine.—The American Tropical Remedy Company of Santurce, Porto Rico, sold three products—"Pildoras Matricura," "Cordial Matricura" and "Filarysine"—that were declared misbranded in violation of the Federal Food and Drugs Act. The Matricura Pills, when analyzed by the federal chemists, were found to be composed of plant material, including aloes and myrrh; the Matricura Cordial consisted essentially of extracts of plant drugs, alcohol and water, while Filarysine contained the iodides of potassium, sodium, arsenic and mercury, with berberine, glycerin, alcohol and water. Claims made for the Matricura Pills were that they were for dysmenorrhea and the disturbances of the menopause. The Matricura Cordial was also sold for the diseases of women and was said to be indicated in functional affections of the womb, disorders of menstruation, hysteria and nervous diseases. It was also recommended for use in amenorrhea, dysmenorrhea and leukorrhea. Filarysine was described as "the newest and most powerful depurative or purifier of the blood," and was recommended for syphilis and for various cutaneous diseases. In addition to the false and fraudulent therapeutic claims made for these three preparations, misbranding was also alleged, in that the Matricura Cordial had the alcohol content incorrectly stated on the label, while Filarysine, which also contained alcohol, had no declaration to that effect. In June, 1927, the American Tropical Remedy Company, having appeared as claimant and admitted the allegations, judgment of condemnation was entered, and the court ordered that the products be released on the payment of costs and the execution of a bond, conditioned in part that the preparations be not sold or otherwise disposed of without first having been properly labeled.—[*Notice of Judgment 15590; issued October, 1928.*]

Ra'-Balm.—The National Radium Laboratories, Inc., of Minneapolis, Minnesota, shipped in June, 1927, a quantity of "Ra'-Balm" that the government declared was misbranded. When analyzed, Ra'-Balm was found to be an ointment containing soap, salicylates (including methyl salicylate) and a small quantity of mineral matter. It contained no radium. The trade package declared that Ra'-Balm was guaranteed to contain radium of high purity and that it was a "strongly charged radium salve." It was further claimed, in effect, that the preparation would cure rheumatism and all inflammatory conditions, that it would make hair grow and, in many cases, eliminate baldness. These claims were declared false and fraudulent and in January, 1928, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed—[*Notice of Judgment 15580; issued October, 1928.*]

Norma.—The Norma Laboratories, Inc., Albany, New York, shipped in July, 1927, a quantity of "Norma," which the government held was misbranded. When analyzed, Norma was found to consist essentially of a water-glycerin solution of a soluble phosphate, with a small amount of plant extractives and some red coloring matter. The claims made for Norma were to the effect that it was a cure for high blood pressure. The government charged that, as the stuff contained no ingredient or combination of ingredients that were capable of producing the effects claimed, the claims made were false and fraudulent. In February, 1928, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 15559; issued October, 1928.*]



Ra'-Aid.—The National Radium Laboratories, Inc., of Minneapolis, Minnesota, shipped in June, 1927, a quantity of "Ra'-Aid" that was misbranded. When analyzed, Ra'-Aid was found to consist essentially of a watery solution of boric acid, zinc and sodium sulphates and chlorides, colored green with a coal tar dye and flavored with peppermint oil. It contained no radium. It was claimed to be a genuine radium solution and, from the trade package, one might get the impression that there were very few human ailments that Ra'-Aid could not cure. The claims were declared false and fraudulent and in January, 1928, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 15580; issued October, 1928.*]

Correspondence

THE FIFTH INTERNATIONAL MEDICAL CONGRESS OF INDUSTRIAL ACCIDENTS AND OCCUPATIONAL DISEASES

To the Editor:—On September 2-8 the Fifth International Congress on Industrial Accidents and Occupational Diseases was held in Budapest. It represents an earnest effort to establish an international clearing house for the combating and prevention of the casualties due to the relentless warfare of peace, industry. The printed list of registration contained more than 2,400 names from all parts of the world—as far as South Africa, Australia and Japan. National committees were active in most of the civilized countries, the United States national chairman being Dr. Fred H. Albee of New York and Dr. Emery R. Hayhurst of Columbus, Ohio, representing industrial surgery and industrial hygiene, respectively, with myself as secretary. The registration from the United States was about forty. Eighteen of these formed a study group and, traveling together, visited clinics in Berlin, Vienna and Munich previous to the congress, and southern France and Spain afterward.

Two hundred and six papers were read, one hundred and one in German, forty-two in Italian, twenty-one in English and eighteen in French, these four languages being the official ones.

The opening session of the congress was held in the imposing hall of the Hungarian National Academy of Sciences in the presence of the regent of Hungary. After the opening remarks of the Hungarian minister of education and of the president of the congress, Professor De Verebély, the opening address of the congress was given by Dr. C. Kaufmann of Zurich under the title, "The Boundary Between Accident and Disease."

Many "referats" were presented at the plenary sessions on industrial accident and industrial hygiene.

The papers presented by the American group, outside of Dr. Albee's referat, "Use of Automatic Machinery in Traumatic Bone Lesions," were as follows:

A Large Group of Silicotics with Very Low Incidence of Tuberculosis. Prof. E. R. Hayhurst, Columbus, Ohio.
Physical Therapy in Traumatic Conditions. Dr. Richard Kovács, New York.
Treatment of Lacerated Wounds. Dr. David Shapiro, New York.
Essential Early Treatment of Industrial Trauma. Dr. Harry C. W. S. de Brun, New York.
Physiologic Response Attending Exposure to Vapors of Methyl Bromide, Methyl Chloride, Ethyl Bromide and Ethyl Chloride. R. R. Sayers and W. P. Yant, Washington, D. C.
Hospital Management of Industrial Injuries and Diseases. Dr. Emanuel Giddings, New York.
The Periodic Health Examination in Industry. Dr. E. L. Fisk, New York.
The Medicolegal Aspects of Occupational Diseases. Dr. H. H. Kessler, Newark, N. J.
The Determination of Permanent Disability Following Head Injuries. Dr. R. M. Carter, Green Bay, Wis.
The Spinal Column in Reference to Trauma. Dr. Raphael Levy, New York.
Occupational Ear, Nose and Throat Diseases Among American Factory Workers. Dr. Otto Glogau, New York.

Thus the work of the Reconstruction Hospital of New York was represented by three papers, those of Drs. Kovács, Giddings and de Brun.

Hungary took care of the congress with a perfect organization and with magnificent hospitality. Its many modern institutions of social welfare, industrial health, prevention and care of accidents proved a source of education and inspiration. Among the noteworthy study features accompanying the congress were an exhibit on accident prevention and industrial welfare, an exhibit on superstition and quackery, and an exhibit on the literature on industrial and social medicine. Group visits were made to the institute and museum of social hygiene, to the headquarters and hospital of the national workers' insurance institute (Hungary possessing a comprehensive new national insurance act) to the great state iron, steel and machine factories, and to the clinics and institutions of the Hungarian state university.

All foreign members of the congress were invited guests at two huge dinners, one given by the Hungarian government and one by the city of Budapest, and at one reception given by the president of the congress. The American and English members were received at afternoon tea in the attractive villa of the American minister to Hungary, Mr. J. Butler Wright.

Among the resolutions adopted was the following:

After listening to the remarks of Professor Jellinek of Vienna, the members of the Fifth International Medical Congress of Industrial Accidents and Occupational Diseases are convinced that the care given to electrical injuries is insufficient in all countries and that first aid in cases of accidents caused by electric currents as well as the after-treatment of such accidents is not sufficiently provided for. There is much to be desired in the field of electropathology and electric accidents as regards the treatment by doctors; likewise, as to knowledge by engineers in most countries of the dangers of electricity and protection against them.

The members of the congress put forward the request to the government of every country that they should give every attention to the treatment of electric accidents just as the teaching of their prevention and practical instruction in a corresponding degree should be given in the universities and technical schools, and that there should be a sufficient supply of instruments so that in future any accidents caused by electricity may be prevented and, if this is not altogether possible, that they should at least insure immediate help for the injured person for the saving of his life or for the easing of the serious consequences of the accident.

International cooperation for the establishment of electropathology and electrohygiene is likewise greatly to be desired and the earliest possible foundation of it insured. In the first place, these international workers must find out what the conditions are in each country for the prevention of electric accidents, what may be the educational equipment of doctors and technicians, likewise the necessary instruction of the people, after which it should be made compulsory in every country or state where electricity is employed and where electric accidents are likely to occur so certain insurance instructions should be maintained.

But in the first place an endeavor should be made that the course of instruction in universities and technical schools should be essentially better than it is at present in most countries. Every medical and technical student should be compelled to attend lectures and pass examinations on electropathology and therapy as well as on electrohygiene. In this respect every doctor and engineer should prove his practical and theoretical ability before the health and security of workers with and consumers of electricity be entrusted to them.

RICHARD KOVÁCS, M.D., New York.

"RECOVERY OF HUMAN OVA FROM UTERINE TUBES"

To the Editor:—I have read with great interest the article "Recovery of Human Ova from the Uterine Tubes" (THE JOURNAL, October 6, p. 1018). As far as I recall, this is the first time an effort has been made to recover ova from the uterine tubes in this manner. This is all the more remarkable because in 1913 in my book "Sterility in the Male and Female" (New York, Rebman Company) I recommended such a procedure to study the behavior of spermatozoa in normal and pathologic cases in the uterine tubes. I believe I was the first to suggest this method of examination. Allow me to quote from this work (pp. 47, ff.):

I perfectly agree with Haussmann that in the ordinary ways we cannot obtain any information about the behavior of spermatozoa in the parts beyond the uterus. Wherever such investigations have been made in human beings, it was only in isolated and accidental cases, and not in a deliberate and systematic manner. Thus, Bab states that Hirschfield found spermatozoa in the tubes from fourteen to sixteen hours after the coitus that killed the patient, etc.

It is for these reasons that I would like to suggest an original method of investigation, which would throw considerable light upon the behavior of spermatozoa in the genital tract beyond the uterus, also on their viability in the cervix, uterus and fallopian tubes, and would, besides, prove of great practical value in determining the value of any particular operation for sterility. This method of investigation can be pursued by a gynecologist only (or in combination with a gynecologist) who has a large number of hospital cases at his command. It is as follows, and applies not merely to sterility cases but to any woman during the child-bearing period who is about to be operated upon, no matter for what condition.

Let the intern whose duty it is to take the patient's history also enter on the card, besides the other facts, the date of the last coitus. If douches have been taken since then, this should also be noted with full particulars. In any gynecologic operation in which a curettage precedes the regular operation or is the only thing to be done, let the surgeon first swoop the curet around the cervix and empty the scraping into a sterile dish marked "cervix," and then after dilation do the same in the fundus and empty these scrapings into another sterile dish marked "fundus."

This takes only a few minutes to do, and then the intern can examine these scrapings later on for live and dead spermatozoa. If the operation includes the removal of one or both tubes or ovaries, these can also be examined later for live and dead spermatozoa.

In private practice, in certain cases, especially in sterility cases, the patient can be instructed to have coitus one, two or three nights before the operation, according to the statistics we desire. It should be remembered that these investigations are made in all gynecologic operation cases and not only in sterility cases. Of course, from a few cases no deductions can be made; but if this simple procedure, which does not in any way interfere with the rapidity of the operation or in any other way, is followed, in about 1,000 cases we can have accurate data, as follows:

The rest of the chapter is taken up with deductions which may be drawn from the foregoing experiments.

MAX HUHNER, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USE OF DRIED EGG POWDER

To the Editor:—Kindly inform me in what way the egg was given in the work cited in the editorial that appeared in THE JOURNAL, September 29, p. 964. I am very much interested.

G. A. HITZEL, M.D., Buffalo.

ANSWER.—Dr. Mary Swartz Rose of the Department of Nutrition, Teachers College, Columbia University, New York, to whose work the editorial referred, writes:

In our animal experiment in which egg was added to the diet as reported in the *Journal of Biological Chemistry* (**78**: 549 [July] 1928) we added the egg in the form of dried egg powder.

Dr. Rose also referred to certain work which she and her associates have done on the utilization of raw and cooked white of egg (*J. Biol. Chem.* **50**:83 [Jan.] 1922 and **58**:369 [Dec.] 1923).

POTABILITY OF HARD OR SOFT WATER

To the Editor:—The drinking water in this section is excessively hard, being reported around 650 parts per hundred thousand. Has any work been done to prove what pathologic conditions, if any, will arise from the continued ingestion of this water? The textbooks and papers that I have been able to consult are agreed that the continued use of such water would be most unsatisfactory. It has been my observation, however, that the people who have used this water for years live just as long as do people using softer water, and that they do not show a higher incidence of those conditions which one might expect would arise from the use of such water, such as gastric or nephritic conditions, than seems to be average for other communities. Kindly omit name.

M.D., New York.

ANSWER.—There is no good evidence, medical or statistical, to support the contention that hard drinking waters are deleterious to the health. On the contrary, experimental work has shown that chicks developed larger bones when given hard water than when given soft water. It is safe to say that the hardness of a drinking water cannot be correlated with the development of pathologic conditions in a normal, healthy person.

UNILATERAL EDEMA

To the Editor:—I saw this morning a woman, aged 67, with unilateral edema. The left side of the face, the left arm and hand, the left foot and the left leg were edematous. The patient had chronic interstitial nephritis, with albumin, pus and casts in the urine. The heart was irregular but there was no murmur. The blood pressure was 138 systolic and 98 diastolic, and the same on the two sides. Swelling was not apparent on the right side. The reflexes at the knee were abolished on the left side and slightly exaggerated on the right. The patient can walk and use the left leg and arm without noticeable difficulty. The local physician states that he has seen this condition several times before in chronic interstitial nephritis and in advanced pulmonary tuberculosis. Please explain why the swelling should be unilateral. It does not change sides as the patient does and has already been noticed for three days on the left side.

M.D., Texas.

ANSWER.—The unilateral edema is most often not due to cardiac or renal disease. It is usually an obscure condition associated with a disturbance of the sympathetic system or trophic centers in the spinal cord. It has been noted in a few cases in hemiplegia. As a rule, however, all evidences of organic disease are absent. The face and the trunk are rarely attacked. It may affect any portion of the body, one side or both. The edema that is due to venous obstruction pits on pressure, while lymphatic edema does not, and the latter is more solid. Most likely in this particular case the patient probably has some disturbance of the sympathetic system or the trophic centers.

TREATMENT OF HYDROGEN SULPHIDE CONJUNCTIVITIS

To the Editor:—In a recent abstract on "Mechanism of Hydrogen Sulphide Poisoning," the author mentions the use of electroferrol for the treatment of hydrogen sulphide conjunctivitis. This is a very common eye condition in certain oil fields and refineries of Texas, and I should like to know what electroferrol is and how used in such conditions.

C. M. AVES, M.D., Houston, Texas.

ANSWER.—Electroferrol is claimed to be a colloidal suspension of iron made at the chemical works of Heyden at Radebuel-Dresden, Germany. From the data available it does not appear that this colloidal suspension is used in the eyes as a topical remedy. It thus appears not to be indicated in the immediate control of the exquisite pain associated with the early stages of this occupational disease.

Yant and Fowler (Bureau of Mines Report 2776, October, 1926) discuss hydrogen sulphide poisoning in the Texas oil fields. For the early treatment of hydrogen sulphide conjunctivitis they recommend the following measures:

1. Relieve pain by the instillation of a solution of butyn or butyn and epinephrine (New and Nonofficial Remedies, 1928, p. 57). In severe cases phenacaine (New and Nonofficial Remedies, 1928, p. 59) is indicated.
2. Follow with boric acid ointment.
3. Instil drops of some mild silver protein (New and Nonofficial Remedies, 1928, p. 397).
4. Throughout treatment, apply hot compresses or alternating hot and cold compresses if pain is severe.

The practice of dispensing cocaine solutions for self medication for ambulatory cases is regarded as dangerous. Patients at work with eyes so anesthetized are not warned of hydrogen sulphide gas action and may be so severely burned as to make corneal ulcers imminent from the outset.

VAN DEN BERGH AND INDICAN TESTS

To the Editor:—I should like some specific information on the following points: In descriptions of the van den Bergh test we are told to expect an immediate red-violet color on the addition of the diazo reagent in the indirect reaction. In the description of the reaction for indican in the serum we are directed to proceed in exactly the same manner up to this point. Suppose we are testing a serum that gives the indirect reaction to the van den Bergh test in a strongly positive manner; would this color reaction not mask or destroy the faint pink to be expected after the next step in the test for indican? In view of the uncertainty that exists as to the true nature of the reacting substance in the indican test and the striking similarity of the positive reaction in both tests is there not a question as to the identity of the reacting subsance? The point I raise in my first question is one of practical importance and came up in a case recently of postpartum convulsions in which there was more than a probability that the condition was primarily of kidney origin rather than of an eclamptic nature. The test for indican was being tried and at the end-point of the van den Bergh reaction a faint positive was observed. The indican test was proceeded with and gave a negative result, the pink of the indirect van den Bergh disappearing before the alkali was added for the final step in the indican test. This led me to wonder whether a strong indirect van den Bergh would disappear likewise so as to permit a clear color reaction in the case of a positive indican test. Moreover, it is quite conceivable that the two tests should be frequently positive in the same serum. Kindly use initials only.

M.D., Nassau

ANSWER.—Before answering the points raised here, one must have clearly in mind the differences between the indirect van den Bergh test for bilirubin in the serum and the test for the so-called indican in the serum. In the first place, bilirubin reacts with the diazo reagent to produce a pink or red color depending on the amount of bilirubin present, while the "indican" gives, after standing for a time, a buff color with the diazo reagent. In the second place, when these diazotized mixtures are treated with caustic alkalis, the bilirubin-containing serum gives a green shade, while the indican-holding serum shows a bright rose red tint. The bilirubin test is characterized by a red color before alkalization of the mixture, but the "indican" test is complete only after caustic alkali is added and a red color then produced.

The correspondent raises the question of the possibility of a strong positive van den Bergh reaction for bilirubin masking or destroying the rose red color that might be expected to develop on addition of alkali, if "indican" is also present. Recalling that the red color of a positive van den Bergh test changes to green on addition of alkali, it would be expected that this green color would, to a more or less extent, cover up the faint red of the indican reaction. The resulting color would, of course,

depend on the relative proportions of the bilirubin and "indican" in the serum. There would be no question of the presence of bilirubin, as the red color is produced before alkalization, but it is probable that a slight increase of indican would be overlooked. Under such circumstances it would be necessary to resort to other tests for the detection of indican.

It must be admitted that there is a possibility of both bilirubin and "indican" existing in the same serum, but it seems to have been shown by the work of van den Bergh, Feigl and Querner, and of Andrewes that the serum bilirubin is below normal in cases of nephritis. If this is true, the possibility of confusing these tests is relatively slight, although such complications may arise.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 8-11, 1929. Sec., Miss Bessie Tucker, 519 Dexter Ave., Montgomery, Ala.

COLORADO: Denver, Jan. 8, 1929. Sec., Dr. Philip Work, 324 Metropolitan Bldg., Denver, Colo.

DELAWARE: Wilmington, Dec. 11, 1928. Sec., Dr. Harold L. Springer, 1013 Washington St., Wilmington, Del.

DISTRICT OF COLUMBIA: Washington, Jan. 8, 1929. Sec., Dr. Edgar P. Copeland, Suite 110, 1801 Eye St., Washington, D. C.

KENTUCKY: Louisville, Dec. 4-6. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville, Ky.

LOUISIANA: New Orleans, Dec. 13-15. Sec., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans, La.

MARYLAND: Baltimore, Dec. 11-14, 1928. Sec., Dr. Harry M. Fitzhugh, 1211 Cathedral St., Baltimore, Md.

MINNESOTA—Basic Science: Minneapolis, Jan. 2, 1929. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis, Minn.

NEBRASKA—Regular: Lincoln, Nov. 26-28. Dir., Mrs. Clark Perkins, Bureau of Examining Boards, Dept. of Public Welfare, Lincoln, Neb.

NORTH DAKOTA: Grand Forks, Jan. 1, 1929. Sec., Dr. G. M. Williamson, Grand Forks, N. D.

OHIO: Columbus, Dec. 5-7. Sec., Dr. H. M. Platter, Ohio State Savings Bldg., Third and Gay Sts., Columbus, Ohio.

OREGON: Portland, Jan. 2-4, 1929. Sec., Dr. Joseph F. Wood, 510 Selling Bldg., Portland, Ore.

RHODE ISLAND: Providence, Jan. 3-4, 1929. Sec., Dr. B. U. Richards, State House, Providence, R. I.

VIRGINIA: Richmond, Dec. 4-7. Sec., Dr. J. W. Preston, State Bd. of Med. Examiners, 720 Shenandoah Life Bldg., Roanoke, Va.

WEST VIRGINIA: Morgantown, Nov. 27. Sec., Dr. W. T. Henshaw, State Health Department, Charleston, W. Va.

WISCONSIN: Madison, Jan., 8-10, 1929. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

WISCONSIN—Basic Science: Milwaukee, Dec. 15, 1928. Sec., Prof. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

AN AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Resolution of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons

An American Board of Obstetrics and Gynecology, if created, will not conflict with or duplicate the activities of the American College of Surgeons or any other existing organization. Without making any invidious comparisons, suffice it to say that specialism today is practically unsupervised except in the field of otolaryngology. The submission of case records and the assurance of a certain degree of mechanical operative skill alone can by no means be accepted as the criterion of an individual's capabilities to practice a specialty. That there is a distinct recognition of the value of such a controlling influence as we propose in our own field is evident from the statistics emanating from the American Board of Oto-Laryngology. This board was organized in 1924, examined 1,261 applicants to June, 1928, and granted certificates to 1,179 of the candidates. It seems logical to assume that a candidate's anxiety to secure a certificate will stimulate him to take a course of graduate study and otherwise prepare himself thoroughly before filing his application.

The cooperation of the American Gynecological Society may be anticipated, as a committee similar to our own was appointed soon after the receipt of a communication concerning the matter from our council. With the approval of President Findley, your chairman invited Dr. Jennings C. Litzenberg, chairman of the committee from the American Gynecological Society, to attend our meeting. He participated in our discussions and is therefore entirely familiar with our aims and ambitions, as well as the details of the plan we append for your consideration.

PLAN OF ORGANIZATION

Your committee recommends the following plan for the organization of an American Board of Obstetrics and Gynecology:

Board of Directors and Examiners.—The board of directors and examiners shall be nine in number, representing nine different sections of the United States and Canada.

Three to be appointed for five years by the American Association of Obstetricians, Gynecologists and Abdominal Surgeons.

Three to be appointed for five years by the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association.

There shall be at least one assistant examiner in each district nominated by the examiner in each district, subject to the approval of the board.

The examination of each candidate shall be conducted by three examiners.

Officers.—The board of directors shall elect from their number a president, a vice president and a secretary and treasurer.

Purposes.—1. To elevate the standard and perform such functions as will advance the cause of obstetrics and gynecology.

2. To determine the competence of specialists in obstetrics and gynecology.

3. To arrange, control and conduct investigations and examinations to test the qualifications of voluntary candidates for a certificate to be conferred by the board.

4. To serve the public, hospitals and medical schools by preparing lists of practitioners who have been certified by the board.

5. To protect the public against irresponsible and unqualified practitioners who profess to be specialists in obstetrics and gynecology.

General Requirements for All Applicants.—1. High ethical and professional standing.

2. A medical degree satisfactory to the board.

3. Adequate training in obstetrics or gynecology as a specialty.

4. Formal application on an official application blank, which shall include the candidate's professional record.

5. Enclosure of a small photograph and three reprints of each published medical paper with the application blank.

6. A fee of $25 with each application.

7. Two letters of endorsement from well known obstetricians and gynecologists.

Classification of Applicants.—Applicants to be eligible for certificates shall be grouped as:

Group 1. Those whose present professional record and prestige are such as to give them preeminence in obstetrics and gynecology.

Group 2. Those who have specialized in obstetrics or gynecology for ten years or more.

Group 3. Those who have specialized in obstetrics or gynecology for more than five and less than ten years.

Special Requirements for the Various Groups.—Group 1. May be passed on their records without further examinations, after filling out the application blank and paying the fee of $25.

Group 2. Practical clinical and laboratory examination, including gynecologic and obstetric pathology.

Group 3. Written reports of fifty complicated obstetric or pelvic surgical cases, with a practical and written clinical and laboratory examination.

Examinations shall be given in obstetrics and gynecology.

Before becoming eligible for examination, each applicant must present himself personally to one member of the board, who will go over his credentials and make a survey of his character.

The examiners shall endeavor to be fair-minded, avoiding an unduly exacting standard on the one hand, and an unwarranted laxity on the other, either of which would defeat the purpose of the investigation.

The certificate of the board shall be issued to each applicant who passes his examination successfully.

In event of failure to pass the examination, the application fee shall not be returnable, but the candidate may be admitted to a second examination after one year or within three years without additional fee. If he reapplies after three years he will be required to make a new application and pay another fee of $25.

The conferring of degrees is not contemplated by this board, as this is a function for universities, and the board shall not attempt to control the practice of obstetrics and gynecology by the promotion of any license or legal regulations.

It is hoped that all well established specialists in obstetrics or gynecology will apply for the certificate of the board, thereby indicating their approval of the movement to elevate the standards of training in obstetrics and gynecology.

Your committee recommends the adoption of this report, and the transmission of a copy to the American Gynecological Society through its committee, already appointed. Your committee also recommends that another copy of this report, together with a copy of the original resolution adopted at the 1927 meeting, be forwarded to the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, with a request that a committee be appointed to cooperate with the two existing committees.

WALTER T. DANNREUTHER, M.D., Chairman, New York.
LOUIS E. PHANEUF, M.D., Boston.
F. H. FALLS, M.D., Chicago.
ARTHUR H. BILL, M.D., Cleveland.
G. D. ROYSTON, M.D., St. Louis.

V 9
192

Book Notices

ON THE DYSENTERIES OF INDIA. With a Chapter on Secondary Streptococcal Infections and Sprue. By Hugh W. Acton, Lieut.-Col., I. M. S., Professor of Pathology and Bacteriology, Calcutta School of Tropical Medicine and Hygiene, and R. Knowles, Lieut.-Col., I. M. S., Professor of Protozoology, Calcutta School of Tropical Medicine and Hygiene. Cloth. Price, Rs. 7/8. Pp. 178, with 33 illustrations. Calcutta: Thacker, Spink & Company, 1928.

This book is frankly a compilation intended as a comprehensive yet brief presentation for the medical practitioners of India, where dysentery is the third most important cause of mortality. It causes more deaths in all India than does plague, and its mortality is equaled only by cholera and is surpassed only by malaria and by respiratory diseases, including pneumonia and tuberculosis. The authors estimate that dysentery kills from 300,000 to 350,000 persons a year in India. Notwithstanding the prevalence of dysentery, they have found in studying the literature that most of the work on this subject has been done by individual and isolated workers and that the advances in knowledge that followed the war are not generally appreciated. Bacillary dysentery, for example, has been found to be about five or six times as common as amebic dysentery, a most important point in the consideration of treatment. The causative organisms of dysentery are placed in the following order of importance: the bacillus of Flexner, on account of its universal prevalence; the bacillus of Shiga, because of its virulence; *Endameba histolytica;* and, rarely, *Balantidium coli.* The procedures necessary for diagnosis are considered in detail, practical suggestions for management are given, the present status of preventive treatment and specific therapy is outlined, and suggestions are incorporated that point the way to the ultimate control of the scourge of dysentery in India.

DISEASES OF INFANTS AND CHILDREN. By Henry Dwight Chapin, A.M., M.D., Medical Director of the Speedwell Society, and Lawrence Thomas Royster, M.D., Professor of Pediatrics and Head of the Pediatric Department of the University of Virginia. Sixth edition. Cloth. Price, $7.50. Pp. 675, with illustrations. New York: William Wood & Company, 1928.

Pediatrics, like those with whom it deals, is live and growing. Each year brings its quota of new methods of diagnosis and treatment. A textbook of pediatrics must be constantly revised in order to keep pace with the new developments. The author of any textbook is presented with another problem. He must fit as much material as possible into a limited space and at the same time cover thoroughly all the essentials. The writers of this book have succeeded admirably in doing just this. The material is clearly and concisely presented in the usual textbook fashion. A great number of facts may be garnered with a minimal amount of time spent in reading. Some of the latest discoveries have been included, such as the ketogenic diet in epilepsy, the Dick test and scarlet fever antitoxin, and convalescent serum in the prophylaxis of measles. On the other hand, no mention is made of anatoxin or toxoid preparations for the prevention of diphtheria or of Birkhaug's erysipelas serum. A short chapter is devoted to the eyes, which is unusual for a textbook on pediatrics. The value of a book of this sort could be materially enhanced by including references for collateral reading in the periodic literature. All in all, this book fulfils the purpose for which it was written.

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Kraus, und P. Uhlenhuth. Lieferung 21. Band I. Die congenitale Übertragung der Infektionskrankheiten. Von Prof. Dr. H. Braun und Dr. K. Hofmeier. Specifität der Infektionserreger. Von Prof. Dr. W. Kolle und Dr. R. Prigge. Die Grundlagen der Lehre von der erworbenen aktiven (allgemeinen und lokalen) und passiven Immunität. Natürliche Immunität (Resistenz). Von Prof. Dr. M. Hahn, Third edition. Paper. Price, 16 marks. Pp. 523-758, with 3 illustrations. Jena: Gustav Fischer, 1928.

The article on congenital transmission of the infectious diseases contains considerable new material, which does not, however, greatly alter earlier views. Placental tuberculous infection, for example, is believed by Braun and Hofmeier to occur somewhat more frequently than at one time supposed but to be rare compared with infection after birth. The chapters on the specificity of infecting agents, on acquired immunity (active and passive) and on natural immunity are well up to the average of other articles in the Handbuch. An annoying feature of some of the bibliographies is the mauling by the typesetter of titles in the English language. This is particularly noticeable in the first article of this issue.

BRONCHIAL ASTHMA: ITS DIAGNOSIS AND TREATMENT. By Harry L. Alexander, A.B., M.D., Associate Professor of Medicine in the Washington University School of Medicine. Cloth. Price, $2.25 net. Pp. 171, with 8 illustrations. Philadelphia: Lea & Febiger, 1928.

This provides an outline of bronchial asthma. The first five chapters are complete for a book of its size; these deal with the history of asthma, the anatomy concerned, its pathogenesis, postmortem and sputum observations, and a discussion of immunity in relation to bronchial asthma. The chapters on symptoms, diagnosis and complications are merely fair. The differentiation between bronchial and cardiac asthmas, a most important subject, is treated poorly. The paragraphs on emphysema are excellent. The chapter on treatment is fairly good. The untoward symptoms from ephedrine are not sufficiently stressed. The author does not state which of the nonspecific methods of treatment he employs in the many cases in which specific treatment is impossible. An important omission is the absence of definite postulates for the diagnosis of the specific etiologic factor; namely, that the patient must come in contact with the offending substance, that the removal of this substance must alleviate symptoms, that reexhibition of the substance must bring on a return of symptoms. In general, the book may serve a useful purpose as an outline. The bibliography is excellent and points the way to further knowledge on the various subjects treated.

SCHWEFELTHERAPIE. Von Priv.-Doz. Dr. med. T. Gordonoff, Prof. Dr. Robert Meyer-Bisch, und Dr. Paul Unna, Jun. Paper. Price, 4.50 marks. Pp. 96, with 11 illustrations. Leipzig: Georg Thieme, 1928.

This calls attention to a drug that is too much neglected in the practice of medicine, certainly in the practice of dermatology. The pharmacology of sulphur is first considered; then the authors review the use of sulphur from the standpoint of internal medicine, calling attention to the use of this drug in chronic arthritis deformans and possibly in hypertonus and in diabetes. Sulphur springs and sulphur baths are also discussed. Paul Unna then considers sulphur from the standpoint of dermatology. Without doubt sulphur is one of the most important drugs in the pharmacopeia in the treatment of skin diseases. He furnishes a long list of prescriptions that he advises be used in the treatment of dermatologic conditions. Throughout this small volume one notes the regrettable recommendation of proprietary preparations of unestablished composition. It would almost be necessary to have an encyclopedia for proprietary medicines as a guide to the book.

PRACTICAL SURGERY OF THE ABDOMEN. By George H. Juilly, M.D., Chief Surgeon to the French Hospital, San Francisco, California. With a foreword by W. Wayne Babcock, M.D. Volumes I and II. Cloth. Price, $16 net. Pp. 1275, with 1291 illustrations. Philadelphia: F. A. Davis Company, 1928.

The subject of abdominal surgery is extensive, and to discuss it amply in the rather short space of 1,200 pages is a difficult task. This, however, the author accomplishes ably and well. The work is in two volumes.

Volume I, after a preliminary discussion of the surgical anatomy of the abdomen and general diagnostic considerations, includes the operations on the anterior abdominal wall and the surgery of the stomach, duodenum and intestine, biliary tract, liver, pancreas and spleen. Volume II deals with genito-urinary surgery, peritonitis, acute surgical conditions of the abdomen and the surgery of gynecology and obstetrics. Each possible condition, common as well as rare, is considered separately. The direct and differential diagnosis, surgical anatomy, and steps of an approved operation from incision to closure are given in clear, simple, accurate, detailed manner. The possible dangers are stressed and abundant advice is provided on how to avoid and eliminate complications. Multiple sketches, drawings and diagrams are inserted to amplify and simplify the step by step description. Only a single operation is given for each condition, selected by the author as the one which he considers simpler and easier to do, at the same time offering the best prospects of relief. This, of course, is a matter of personal opinion and may be satisfactory with such cases as hernia, for which only

the standard Bassini operation is described in minute detail, including how to find a small sac, how to avoid injury to the bladder, where and how to remove the appendix, and what to do with sliding hernia, but it may prove a source of contention in cases in which there is greater controversy as to the method of treatment than in hernia. This is particularly the case in peptic ulcer, wherein many surgeons would not agree with the author's advice to cauterize a posterior wall gastric ulcer or place the gastro-enterostomy as close to the pylorus as possible. The author, however, discusses these points and gives plausible reasons for his contentions. Although it is difficult to pass judgment on individual chapters in a work generally so good, those on the acute surgical conditions of the abdomen stand out prominently whereas those on the surgery of the gastro-intestinal tract are excellent. Postoperative treatment, complications, blood transfusion and local anesthesia are amply considered. The entire work is decidedly modern. Although most of it is based on the author's personal knowledge and experience, many references are made to standard works of diagnosis and surgery as well as to the recent literature, and an extensive bibliography is provided. The book is to be recommended not only to those who are desirous to refresh or increase their surgical knowledge but also as a reference work to those who do surgery daily.

REQUISITES AND METHODS IN SURGERY. For the Use of Students, House Surgeons and General Practitioners. By Charles W. Cathcart, C.B.E., M.A., M.B., Consulting Surgeon, Royal Infirmary, Edinburgh, and J. N. Jackson Hartley, O.B.E., M.B., F.R.C.S., Surgeon, Cumberland Infirmary, Carlisle. Cloth. Price, 12/6 net. Pp. 476, with 244 illustrations. Edinburgh: Oliver & Boyd, 1928.

This has been written as a guide to many of the details of surgical practice. An attempt has been made to bring out many of the basic general surgical principles. The subjects discussed include case taking, preoperative and postoperative treatment of the patient, anesthesia, bandaging and a group of minor operations. Especially interesting is the section dealing with the treatment of emergency cases, including urinary retention, hemorrhage, shock, injuries, fractures and dislocations. A description is given of the application of plaster-of-paris casts, including a plaster pylon for amputation stumps. Considerable value has been added to the book by the cooperation of a number of contributors in chapters on medicolegal aspects of surgery, poisoning, postmortem examination and a number of other subjects closely related to surgery.

STUDIES ON SCURVY. By Arthur W. Meyer, and Lewis M. McCormick. Stanford University Publications. University Series, Medical Sciences. Volume II, no. 2. Paper. Price, $1.50. Pp. 107, with illustrations. Stanford University: Stanford University Press, 1928.

This monograph presents a careful detailed investigation of scurvy in the guinea-pig. The large numbers of observations, tables and plates point to a thorough study. New constant gross lesions noted included fatty degeneration of the liver and absorption of the roots of the molar teeth. The mature guinea-pig, even with evident pain present, did not show swollen or tender joints or hemorrhage in the extremities. Microscopically, hemorrhages were common, but absent in the skin and joint cavities. Degenerative changes, such as fatty infiltration, lysis, waxy replacement, fenestration and vacuolization, were widely distributed throughout all the master tissues of the guinea-pig. Definite blood changes, appearing in ten days, consisted of a secondary anemia, an increase in reticulated and nucleated red cells, and leukocytes. The references range through the representative treatises of the last century and a half.

YOUR HEART AND YOU. By Robert William Langley, A.B., M.D., Cardiac Consulting Board, Los Angeles Public Schools. Cloth. Price, $1.50. Pp. 59, with illustrations. Los Angeles: Wetzel Publishing Company, 1928.

The preparation of a book designed to instruct laymen in medical subjects is a difficult task. An intelligent knowledge of certain diseases on the part of the general public is of great service to the physician and to the community in preventing disease and its effects. Such instruction should emphasize just what the disease means to the patient and to the community, and methods of prevention. For the details of symptomatology and treatment the patient had better have recourse to his family physician, and he certainly should for conclusions to be drawn from any phenomena experienced. "Your Heart and You" is a sensible little volume designed to tell the layman what he should know about his heart, and it does it very well. Certain phases, as the importance of infection, could possibly have been treated a little more fully, and the increasing evidence of angina pectoris and degenerative diseases of the circulation in late life would warrant attention. Certain minor points might arouse criticism from the physiologist or the clinician, but if the author has written advisedly in the interest of simplicity they can be readily overlooked. Another illustration than that of an electrocardiograph might be more instructive to a layman.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

SERUM DIAGNOSIS BY COMPLEMENT-FIXATION WITH SPECIAL REFERENCE TO SYPHILIS: The Principles, Technique and Clinical Applications. By John A. Kolmer, M.S., M.D., Dr.P.H., Professor of Pathology and Bacteriology in the Graduate School of Medicine of the University of Pennsylvania. Cloth. Price, $7 net. Pp. 583, with 65 illustrations. Philadelphia: Lea & Febiger, 1928.

Extensive and detailed consideration of serology.

EXERCITATIO ANATOMICA DE MOTU CORDIS ET SANGUINIS IN ANIMALIBUS. By William Harvey, M.D. With an English translation and annotations by Chauncey D. Leake, Professor of Pharmacology, University of California. Tercentennial edition. Cloth. Price, $3.50 net. Pp. 154, with illustrations. Springfield, Ill.: Charles C. Thomas, 1928.

Fine facsimile of a medical classic with English translation and notes.

TEXT-BOOK OF UROLOGY. For Students and Practitioners. By Daniel N. Eisendrath, M.D., Attending Urologist Michael Reese and Chicago Memorial Hospitals, and Harry C. Rolnick, M.D., Associate Urologist Mt. Sinai Hospital. Cloth. Price, $9. Pp. 942, with 711 illustrations. Philadelphia: J. B. Lippincott Company, 1928.

Handsomely illustrated new textbook in the field of genito-urinary practice.

LUES CONGENITA TARDA. Von Dr. med. Walther Krantz, Privatdozent, Oberarzt an der Hautklinik Lindenburg der Universität Köln. Paper. Price, 4 marks. Pp. 60, with 46 illustrations. Berlin: Urban & Schwarzenberg, 1928.

Monograph on latent syphilis.

DIE PHYSIOLOGIE DER THYMUS. Von Frederick S. Hammett. Aus dem Englischen übertragen von Frau Dr. Nellmann. Paper. Price, 2.50 marks. Pp. 22. Berlin: Urban & Schwarzenberg, 1928.

Translation of an American monograph on the thymus.

MODERN X-RAY TECHNIC. By Ed. C. Jerman. Cloth. Price, $5.50. Pp. 260, with illustrations. St. Paul: Bruce Publishing Company, 1928.

Uninspiring systematic outline of roentgenologic technic.

PRÉCIS DE PATHOLOGIE CHIRURGICALE. Par MM. Bégouin et F. Papin, et al. Tome II: Tete. Rachis. Bassin. Par H. Bourgeois, oto-rhino-laryngologiste des Hôpitaux de Paris, Ch. Lenormant, professeur agrégé à la Faculté de Paris, R. Proust, professeur agrégé à la Faculté de Paris, et R. Soupault. Fifth edition. Cloth. Price, 55 francs. Pp. 969, with 342 illustrations. Paris: Masson & Cie, 1928.

PRÉCIS DE PATHOLOGIE CHIRURGICALE. Par MM. Bégouin et F. Papin et al. Tome I: Pathologie chirurgicale générale. Maladies générales des tissus. Par P. Lecène, professeur à la Faculté de Paris, L. Tixier, professeur à la Faculté de Lyon, et M. Patel, professeur à la Faculté de Lyon. Fifth edition. Cloth. Price, 55 francs. Pp. 961, with 362 illustrations. Paris: Masson & Cie, 1928.

PRÉCIS DE PATHOLOGIE CHIRURGICALE. Par MM. Bégouin et F. Papin, et al. Tome III: Cou. Thorax. Glandes mammaires. Par H. Bourgeois, oto-rhino-laryngologiste des Hôpitaux de Paris, P. Lecène, professeur à la Faculté de Paris, et Ch. Lenormant, professeur agrégé à la Faculté de Paris. Fifth edition. Price, 55 francs. Pp. 678, with 161 illustrations. Paris: Masson & Cie, 1928.

SCIENTIFIC REPORTS FROM THE GOVERNMENT INSTITUTE FOR INFECTIOUS DISEASES. Volume VI for the year 1927. The Tokyo Imperial University. Edited by Dr. Yoneji Miyagawa. Paper. Pp. 622, with illustrations. Tokyo: Government Institute for Infectious Diseases, the Tokyo Imperial University, 1928.

ANALES DEL SANATORIO VALDES. Tomo III. 1927. Cloth. Mexico, D. F., 1928.

V 9
192

Medicolegal

When Pneumonia Is Not an Accident

(Costly v. City of Eveleth (Minn.), 218 N. W. 126)

The plaintiff's husband died from bronchial and lobar pneumonia, contracted after exposure, chill and inhalation of smoke in the performance of his duties as a member of the city fire department. The industrial commission denied compensation to the widow, who thereupon, by certiorari, carried the case to the supreme court of Minnesota. Except for occupational diseases expressly enumerated and covered by the workmen's compensation law of the state, mere disease is not compensable unless it is an accidental personal injury within the meaning of the law; and an accident is defined as "an unexpected or unforeseen event, happening suddenly and violently, with or without human fault, and producing at the time injury to the physical structure of the body." In the present case there is no proof of "injury to the physical structure of the body" of the deceased, as a result of his work at the fire, as distinguished from the disease that soon followed. Because of the statutory definition of "accident" and its effect in excluding mere sickness from compensation, the court was unable to distinguish the pneumonia in the present case from the typhoid which it had held was not compensable in *State ex rel. Fairbault Woolen Mills Co.* v. *District Court*, 138 Minn. 210, 164 N. W. 810. Pneumonia, like typhoid, is a germ disease. It was hard to see, the court said, how the legislative definition of "accident" could have any function, or how the court could give to such obviously restrictive words their usual restrictive effect, unless the court excluded from compensability such germ diseases as typhoid and pneumonia, when there is no proof of a sudden and unforeseen event, as a cause producing at the time injury to the physical structure of the body. The order of the industrial commission was affirmed.

Mastoiditis from Diving Not an "Accident"

(Henderson v. Travelers' Ins. Co. (Mass.), 160 N. E. 415)

The plaintiff was insured by the defendant against loss from bodily injuries effected through external, violent and accidental means. In diving, on one or two occasions he dived awkwardly, and at one time too straight and went to the bottom. On some of these occasions his nose and ears were full of water, but the plaintiff did not know after which of the dives he noted that condition. On the afternoon after the last dive he became ill, and he so continued until he had to have a mastoid operation. Suit was brought to recover indemnity under the insurance policy. Medical experts called by the plaintiff were of the opinion that he developed a streptococcus infection from the water in the pool; that a large number of virulent bacteria injected into the nose would account for his illness, and that his condition was one that more commonly comes from submersion in a public bathing pool than from any other source; that it was possible that salt water in the mouth and nostrils might cause germs already there to become active, but that the plaintiff's illness was not caused and could not be explained that way because he had been perfectly well and the onset of illness from germs already in the system would not be so sudden; that germs of the same kind may be about us all the time, being present at times in dust, and coming possibly from people coughing; and that a catarrhal infection or a head cold is sufficient to start the trouble. Without objection from the plaintiff, the jury was asked, "Was the disability of the plaintiff caused by a germ or germs received into his system from the swimming pool?" The jury answered "No," and thereupon the judge directed a verdict for the defendant and reported the case to the supreme judicial court. There the plaintiff contended that the jury should have been permitted to pass on the general question, whether, as the result of some unintentional, unusual or accidental happening in connection with his diving, germs causing his illness were either introduced into his system from the pool, or, being already in his system, were conveyed to a place where injury resulted. He contended that the evidence would justify the jury in finding that something unexpected and unintended happened, constituting an accident. The supreme judicial court, however, quoted the United States supreme court in *United States Mutual Accident Association* v. *Barry*, 131 U. S. 100, 121; 9 S. Ct. 755, 33 L. Ed. 60, to the effect that:

> If a result is such as follows from ordinary means, voluntarily employed, in a not unusual or unexpected way, it cannot be called a result effected by accidental means; but that if, in the act which precedes the injury, something unforeseen, unexpected, unusual occurs which produces the injury, then the injury has resulted through accidental means.

On the evidence, said the court, the entrance of water into the ears and nose was a natural and usual result of the intended acts of the plaintiff. Eliminating the pool as the source from which the germs came, it is a matter of conjecture whether they were previously in the plaintiff's nose or mouth or entered his system from some unknown source after the baths were taken, or whether the salt water or something else caused them to become active or injurious, or whether his injuries were effected through accidental means. Judgment for the defendant was therefore rendered on the verdict of the jury.

Electrical Treatment by Osteopath Unlawful

(State Board of Med. Exam. of N. J. v. De Young (N. J.), 140 A. 676)

The defendant, a licensed osteopath, displayed various signs: "Electric Treatments," "Doctor De Young," and "Dr. De Young's Health Office." A witness testified that he prescribed for her a diet, advised her to take rhubarb and soda, examined her by means of a fluoroscope, and caused electrical treatments to be given her by a nurse under his direction. Four other witnesses testified to the same effect. Prosecution was instituted by a member of the state board of medical examiners. The trial court dismissed the complaint on the ground that the defendant was licensed to practice osteopathy and therefore had a right to give electric treatments. By a writ of certiorari, the state board of medical examiners carried the case before the supreme court of New Jersey. The defendant contended that one who obtains a license to practice osteopathy has, by the terms of the law, studied such subjects as would qualify him to give electrical treatments. The court suggested, however, that while this argument was persuasive as to why osteopaths should by law be permitted to give electrical treatments, it was unsound as to their having, under the statutes now in force pertaining to the practice of osteopathy, the legal right to do so. Under the law the osteopath is now limited in his treatment to the manipulation of the human body by hand, so as to bring all parts into proper position. The court held, therefore, that an osteopath who gives electrical treatments in New Jersey violates the medical practice act of that state. There was evidence that the defendant had used the letters "Dr." in connection with his name, without qualifying the meaning of that designation. Section 8 of the medical practice act of New Jersey provides that any person is regarded as practicing medicine and surgery who uses the letters "Dr." in connection with his name and holds himself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition. The supreme court held that the testimony with respect to this feature of the case seemed to warrant a conviction, since the defendant did use the letters "Dr." in connection with his name and did offer and undertake by a method to treat a physical condition. The judgment of the trial court was reversed.

Insanity Rebuts Presumption Against Suicide

(Metropolitan Life Ins. Co. v. Plunkett (Okla.), 264 P. 827)

This case was brought by the beneficiary of an insurance policy on the life of her husband. The policy provided that if the insured, within one year from the date of issue, died by his own hand or act, whether sane or insane, the policy should become null and void. Within the time stated, the insured died, apparently from the effects of carbolic acid poisoning. Suit was instituted in the proper district court, where judgment was given for the plaintiff, the beneficiary. The defendant, the insurer, appealed. The testimony established fairly satisfactorily that death was caused by carbolic acid taken internally, but whether intentionally or accidentally was a litigated question. The theory of the insurer was that the insured, while

laboring under a suicidal mania, purposely took his own life. The case was previously before the supreme court of Oklahoma, and the court then held: "Upon an issue of suicide self-destruction is never presumed." *Metropolitan Ins. Co.* v. *Plunkett*, 109 Okl. 148, 234 P. 722. On the present appeal, the insurer contended that the presumption against suicide was overcome by the statement of the attending physician in the proof of death that the cause of death was "suicide; carbolic acid." The supreme court rejected this contention, however, citing a previous decision in which it had held that the fact that the beneficiary, in furnishing proof of death as provided by the policy, included an ex parte statement of an acting coroner that the death of the insured was caused by suicide, was not sufficient to cast on the beneficiary the burden of proving that the insured did not commit suicide. *Modern Brotherhood of America* v. *White*, 66 Okl. 241, 168 P. 794. The insurer contended further that the presumption against suicide was overcome by the statement of the physician in the death certificate, filed in the bureau of vital statistics, that the cause of death was "suicide." Again citing one of its previous decisions, the court pointed out that a certified copy of a death certificate was not admissible in evidence for the purpose of showing suicide. *Oklahoma Aid Ass'n* v. *Thomas*, 125 Okl. 190, 256 P. 719. The insurer assigned as error of the trial court its refusal to instruct the jury that if the insured was insane at the time of his death the presumption against suicide would not obtain. The supreme court pointed out, however, that to refuse such an instruction is error only where it is admitted, or where the evidence shows, that the insured was insane. Where the evidence of insanity is weak and inconclusive, so much so that if a jury should return a special verdict finding that the deceased was insane it would be difficult to justify that verdict, it is not error to refuse such an instruction. The evidence of insanity in the present case, in the judgment of the court, was so weak and inconclusive that a special finding of insanity could not be upheld. The question of the sanity or insanity of the insured, however, was not decisive, for suicide, whether sane or insane, would limit the liability of the insurer to a return of the premiums paid. It was not error for the trial court to refuse the instruction asked for. The judgment of the trial court was affirmed.

Injury Must Be Proved, Not Surmised

(Ryan v. Industrial Com., et al. (Ill.), 160 N. E. 353)

Ryan was employed as a caretaker in the Cook County morgue. Oct. 14, 1923, he reported to his immediate superior that he had a sore foot, attributing it, according to the testimony of the officer to whom he reported it, to paring a corn. October 17, he consulted a physician. December 7, as the result of five operations because of gangrene, the leg had been amputated one third of the way below the knee and the infection had cleared up. Ryan's mental condition was bad, however, and he passed into a condition of senile dementia. He instituted action to recover compensation under the workmen's compensation act, and on his becoming insane his conservatrix was substituted for him in the proceeding. An award by an arbitrator was set aside by the industrial commission but affirmed by the circuit court, and the employer appealed. The only evidence of an injury to Ryan in the course of his employment was the testimony of a caretaker, to the effect that on October 7 a box fell on Ryan's toe. A cleaner in the morgue testified that the last day Ryan worked he limped, and that she had seen him limp a good many times prior to October; that he complained of corns and calluses, and that she had seen him take off his shoes to fix his feet. Three physicians, including the one who amputated the leg, testified that Ryan had arteriosclerotic or senile dementia and that the gangrenous condition of his toe and foot resulted from the hardening of his arteries. In reversing the judgment of the circuit court, the supreme court of Illinois ruled that the proof failed to show that Ryan's disability was caused by an accident in the course of his employment. The court quoted with approval *Peterson & Company* v. *Industrial Board*, 281 Ill. 326, 117 N. E. 1033, to the effect that:

> Liability cannot rest upon imagination, speculation or conjecture, upon a choice between two views equally compatible with the evidence, but must be based upon facts established by evidence fairly tending to prove them.

And from *Standard Oil Co.* v. *Industrial Com.*, 322 Ill. 524, 153 N. E. 660, holding that:

> The liability of an employer under the compensation act cannot be based on a choice between two views equally compatible with the evidence but must be based on facts established by evidence and where the cause of injury or death is equally consistent with an accident and with no accident, compensation will be denied.

Mental Infirmities of Age Do Not Invalidate a Will

(McCannon v. McCannon et al. (Texas), 2 S. W. (2d) 942)

The testator, when about 85 years old, executed a will leaving one half of his property to his wife and the other half to his children and their descendants in equal shares. Certain of the heirs at law contested the will, alleging lack of testamentary capacity on the part of the testator and undue influence exercised by his wife. The will was admitted to probate, and an appeal was then taken to the district court. The jury found that the testator did not have sufficient mental capacity to understand what he was doing or to know the nature and extent of his property, the objects of his bounty, and the disposition made of his property. On this finding, the court rendered judgment refusing to admit the will to probate, and from that judgment the widow appealed to the court of civil appeals of Texas. The appellate court found that the verdict of the jury and the judgment rendered were so against the weight and preponderance of the evidence that they should not be permitted to stand. They were therefore reversed and the case remanded for a new trial. In determining whether the findings of the jury are so clearly against the weight and preponderance of the evidence as to be clearly wrong, little, if any, probative force should be given to testimony tending to show that the testator had said and done things as the result of mere idiosyncrasies to which old people unfortunately often fall heir, or that such an aged person had suffered a lapse of memory to such an extent that he could not readily recognize persons whom he had met but a short time before. The issue is, not whether the testator was, at the time of executing the will, of "sound mind," as that term is generally understood in its broadest sense, but whether or not he was capable of understanding at the time that he was making his will, the nature and extent of his property, the objects of his bounty, and the disposition he was making of his property. Imperfect memory caused by sickness or old age, forgetfulness of the names of persons the testator has known, idle questions or statements, or requiring a repetition of information, will not alone be sufficient to establish incompetence. The courts should see that a weakened intellect by reason of old age is not mistaken for one that is lost or confounded with insanity.

Mental Pain from Physical Deformity; Damages

(Fulton Bakery, Inc., v. Williams (Ga.), 141 S. E. 922)

In this case, arising under the workmen's compensation act of Georgia, the court of appeals of Georgia, division 2, held that where there is a physical deformity, such as loss of fingers, mental pain and suffering may result therefrom. And in a suit for damages, where the plaintiff alleges mental pain and suffering resulting from such loss, a charge submitting such an issue to the jury is not objectionable on the ground that it was not authorized by the evidence.

Society Proceedings

COMING MEETINGS

District of Columbia, Medical Society of, Washington, January 2. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, Secretary.
Philippine Islands Medical Association, Manila, December 12-15. Dr. A. S. Fernando, 547 Calle Herran, Manila, Secretary.
Porto Rico, Medical Association of, San Juan, Dec. 1. Dr. M. Pavia Fernandez, Salvador Brau 51, San Juan, Secretary.
Radiological Society of North America, Chicago, December 3-7. Dr. Robert J. May, 5005 Euclid Avenue, Cleveland, Secretary.
Society of American Bacteriologists, Richmond, Va., December 27-29. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.
Southern Surgical Association, White Sulphur Springs, W. Va., December 11-13. Dr. R. L. Payne, Medical Arts Bldg., Norfolk, Va., Sec'y.
Western Surgical Association, Chicago, December 14-15. Dr. Harry P. Ritchie, 914 Lowry Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

16: 457-610 (Oct.) 1928

*Endometriosis Following Salpingectomy. J. A. Sampson, Albany, N. Y. —p. 461.
Cyclic and Other Variations in Tubal Epithelium. E. Novak and H. S. Everett, Baltimore.—p. 499.
Gonococcal Lesions of Female Genitalia. A. H. Curtis, Chicago.—p. 531.
Postpartum Pelvic Infections. B. P. Watson, New York.—p. 536.
*Treatment of Septic Abortion. G. Gellhorn, St. Louis.—p. 547.
Tuberculous Salpingitis. C. C. Norris, Philadelphia.—p. 552.
*Factors Predisposing to Pyelitis in Pregnancy. J. W. Duncan and M. I. Seng, Montreal.—p. 557.
*Epidermoid Carcinoma of Cervix Uteri. K. H. Martzloff, Portland, Ore. —p. 578.
*End-Results of Treatment of Cervical Cancer by Radiation Therapy. W. P. Healy, New York.—p. 594.
What Can We Learn from Study of Mortalities? J. O. Polak and D. G. Tollefson, New York.—p. 600.

Endometriosis Following Salpingectomy.—Endometriosis was found by Sampson in and about the tubal stumps in thirty of thirty-six patients who had had a previous salpingectomy or tubal sterilization.

Treatment of Septic Abortion.—Gellhorn insists that every febrile abortion is potentially a serious condition which should be treated in a hospital. Energetic systemic treatment is instituted at once. This consists of rest in bed, fresh air, forced feeding, alcohol and protein therapy (milk injections, blood transfusions) and hypodermoclysis. The initial examination is made cautiously. If there are definite complications outside of the uterus and even if there is only tenderness on palpation, strict conservatism must be observed. Complications, not the abortion, should be treated. At most, resort is had to quinine and pituitary extract. If ovular remnants protrude from the dilated cervix, they are pulled out with the placental forceps. If a severe hemorrhage occurs at any time during the first two days, the vagina is gently packed with iodoform gauze, the end of the strip extending into the cervical canal. If reexamination on the third day does not reveal any complication or tenderness outside of the uterus, curettage is performed irrespective of fever. Proper operative technic is of decisive importance. After evacuation, the uterus is kept contracted with ergot, and milk injections are continued until the fever has permanently disappeared.

Pyelitis in Pregnancy.—An examination of seventy-eight women has convinced Duncan and Seng that physiologic forces external to the ureter cause obstruction to ureteral and renal drainage in pregnancy, which is relieved almost immediately on the termination of gestation. In pregnancy, there is a constant right-sided ureteral dilatation, while right hydronephrosis is only slightly less frequent. In pregnancy, the left ureter and renal pelvis escape this dilatation in a markedly higher percentage of cases. Bilateral hydro-ureter and hydronephrosis were of very frequent occurrence. The multiparous woman showed these conditions earlier, more frequently, and in much more marked degree than the primipara. Stasis, as measured by inability of the renal pelvis and ureter to empty themselves within the normal time limits, is a definite and almost universal finding in the antepartum woman. In the postpartum woman it is still persistent, in a lesser degree, over a prolonged period of time. By the demonstration of an unexpected amount of pus and coliform organisms in the bladder and kidney urines of these supposedly healthy pregnant and postpartum women, there is some justification for the use of the term, "a hidden infection." Every pregnant woman has obstruction of some degree, a definite dilatation of the ureters and renal pelves, with a well defined stasis. This continues over a long period of time. The authors have demonstrated in the apparently healthy pregnant and puerperal patient a probable renal complication, the presence of pus and coliform organisms. The line of demarcation between the physiologic and the pathologic in these cases is a very fine one. Trauma and a lowered immunity or resistance are the remaining factors needed. These women are all subjects for a possible pyelitis.

Epidermoid Carcinoma of Cervix.—Seventy specimens of cancer of the cervix uteri obtained by operation were examined by Martzloff to ascertain to what extent the cytomorphology of the biopsy material reflected the histologic picture of the parent tumor so far as the predominating type of cancer cell was concerned. In forty-three specimens of transitional cell cancer, study of the biopsy material revealed in thirteen (30.2 per cent) instances a histologic picture that did not satisfactorily reflect the cytomorphology of the parent tumor. In four of these thirteen specimens the biopsy material erroneously indicated a spindle cell type of cancer, and in the nine remaining specimens it was impossible to define a predominant variety of cancer cell. In six specimens of spinal cell cancer, it was impossible from a study of the biopsy material to determine definitely the predominant type in three (50 per cent). In one of these the biopsy incorrectly indicated a transitional cell cancer. There were eleven specimens of spindle cell cancer available for study. In four of these (36.4 per cent of eleven) the biopsy material did not indicate the predominant cell type of the parent tumor. In the group of cancers in which the spinal and transitional cell types occurred in about equal proportion, it was found that the biopsy material in four (40 per cent) of the ten specimens available for study did not bear out the observations in the parent tumor in that they indicated a predominance of transitional cells. Therefore, in carcinoma of the cervix uteri, a study of biopsy material will, in about one third of the material studied, fail to indicate correctly the predominant variety of cancer cell in the parent tumor.

Results of Radiotherapy of Cancer of Cervix.—Epidermoid carcinoma of the cervix is classified by Healy into three histologic grades, based primarily on the degree of anaplasia. These groups correspond closely to three degrees of potential malignancy, as well as to three grades of radiosensitivity (low, medium and high). The adult type of carcinoma of the cervix (grade I) is markedly resistant to irradiation, and the anaplastic type (grade III) is highly radiosensitive, whereas the plexiform type (grade II) occupies an intermediate position. The factors which determine the prognosis in carcinoma of the cervix, as in other diseases, are multiple and not single. The clinical stage of the disease at which treatment is instituted and the radiosensitivity of the tumor are believed to be the most important factors in prognosis when irradiation is employed.

American J. Ophthalmology, Chicago

11: 767-858 (Oct.) 1928

Fracture of Optic Canal. O. Barkan and H. Barkan, San Francisco.—p. 767.
Plastic Dacryorhinostomy: Dupuy-Dutemps and Bourguet Technic for Direct Anastomosis of Tear Sac with Nasal Mucous Membrane. J. J. Corbett, Boston.—p. 774.
Ptosis Operation According to Shoemaker Method. H. W. Scarlett, Philadelphia.—p. 779.
Congenital Absence of Abduction: Case. A. Wilde, San Antonio, Texas. —p. 780.
Argyrosis of Tarsal Conjunctiva in Infant: Case. D. T. Vail, Jr., Cincinnati.—p. 782.
Pigmented Lesions of Conjunctiva. N. M. Black and F. H. Haessler, Milwaukee.—p. 786.
Glaucoma: Historical Review. K. Pischel, San Francisco.—p. 789.
X-Ray Therapy as Diagnostic Agent in Orbital Tumors: Case. K. D. A. Allen, Denver.—p. 794.
Literary Phase of Ophthalmology. W. H. Crisp, Denver.—p. 798.
"Triple Light" as Practical Method of Perimetric Illumination. L. W. Deichler, Philadelphia.—p. 803.
Persistent Hyaloid Artery. D. Basu, Calcutta, India.—p. 805.

American J. Physical Anthropology, Philadelphia

12: 1-220 (July-Sept.) 1928

Dutch Physician as Anthropologist. D. J. H. Nyèssen.—p. 1.
Full Blood American Negro. A. Hrdlička, Philadelphia.—p. 15.
Dimensions of Body: White and American Negroes of Both Sexes. T. W. Todd and A. Lindala, Cleveland.—p. 35.
Physical Development of Negro-White Hybrids in Jamaica, British West Indies. M. Steggerda.—p. 121.

Resistant Ectoderm of Negro. S. J. Holmes, Berkeley, Calif.—p. 139.
Craniometric Studies: 13. Level of Pituitary Point in Basis Cranii in White and Negro. J. Cameron, Halifax, N. S.—p. 155.
Id.: 14. Level of Nasion in White and Negro. J. Cameron, Halifax, N. S.—p. 164.
Id.: 15. Nasion-Occipital Length: New Cranial Dimension: Its Significance in Man and in Lower Mammals. J. Cameron, Halifax, N. S. —p. 176.
Id.: 16. Preporion and Postporion Dimensions of Cranium in Man and in Lower Mammals. J. Cameron, Halifax, N. S.—p. 182.
Id.: 17. Level of Lambda in White and Negro. J. Cameron, Halifax, N. S.—p. 192.
Growth of Face in Different Races. C. J. Connolly, Washington, D. C. —p. 197.

American J. Psychiatry, Baltimore

8: 209-424 (Sept.) 1928

Psychology of Human Conduct. P. Bailey, Boston.—p. 209.
Psychometric Factor in Medical Problems. F. L. Wells, Boston.—p. 345.
Definition by Tendency. W. A. White, Washington, D. C.—p. 251.
Insanity as Defense for Crime. J. W. Moore, Beacon, N. Y.—p. 263.
Convulsive Disorders. G. K. Collier, Rochester, N. Y.—p. 269.
Psychologic Trends in Psychiatry Since 1900. E. Klein, Washington, D. C.——p. 273.
Interpretative Study of Involutional Depression: Four Cases. G. H. J. Pearson, Philadelphia.—p. 289.

American J. Public Health, New York

18: 1217-1338 (Oct.) 1928

Malden Studies on Health Education and Growth. C. E. Turner, Cambridge, Mass.—p. 1217.
Fallacy in Standard Methods of Examining Disinfectants. L. P. Shippen, Norwich, N. Y.—p. 1231.
How Bridgeport Reduced Its Infant Mortality. C. C. Taylor, Bridgeport, Conn.—p. 1235.
Diphtheria: Its Treatment and Prevention. W. W. Lee, Indianapolis.—p. 1239.
Heart Disease and School Life. J. H. Bainton, New York.——p. 1252.
Minimal "Chlorine Death Points" of Bacteria: I. Vegetative Forms. F. O. Tonney, F. E. Greer and T. F. Danforth, Chicago.—p. 1259.
Sickness Survey of Winchester, Mass.: II. Communicable Disease. C. L. Scamman and C. R. Doering, Boston.—p. 1264.
Id.: III. Physical Defects of School Children. F. Moore and A. Hamblen, Boston.—p. 1268.
Vision Survey Among Group of Pupils of Syracuse Schools. H. H. Levy, Syracuse, N. Y.—p. 1273.

Archives of Dermatology and Syphilology, Chicago

18: 501-646 (Oct.) 1928

Angiokeratoma: Confused Clinical and Pathologic Picture. U. J. Wile and G. H. Belote, Ann Arbor, Mich.—p. 501.
Folliculitis Decalvans et Atrophicans (Little). L. K. McCafferty, New York.—p. 514.
Leukoderma: Case Associated with Lichenification. D. E. H. Cleveland, Vancouver, B. C.—p. 527.
*Acanthosis Nigricans. J. H. Swartz and E. C. Miller, Boston.—p. 534.
*Experimental Syphilis in Rabbits: I. Comparative Study of Kahn and Wassermann Reactions. G. E. Wakerlin and O. H. Horrall, Chicago. —p. 539.
Diseases of Skin Among Ex-Service Men. P. B. Matz, Washington, D. C.—p. 549.
*Coccidioidal Granuloma: Specific Allergic Cutaneous Reaction: Experimental and Clinical Investigations. H. P. Jacobson, Los Angeles.—p. 562.
Fungistatic Strain of Bacillus Subtilis Isolated from Normal Toes. S. O. Chambers and F. D. Weidman, Philadelphia.—p. 568.
*Autohemotherapy in Herpes Zoster. B. B. Beeson, Chicago.—p. 573.

Acanthosis Nigricans.—The case reported by Swartz and Miller corroborates the mechaniconervous theory of Darier; i. e., that intra-abdominal pressure from primary or metastatic malignant neoplasm implicating the nerve structures of the sympathetic system and causing an interference with their normal functions may be said to play an important part in the causation of the integumentary changes peculiar to the disease in adults. Postmortem examination revealed a diffuse carcinoma of the stomach with metastases in the retroperitoneal lymph glands, the liver and the suprarenal gland. Acanthosis nigricans was present, as well as ascites, a chronic pleuritis and edema of the lungs.

Wassermann and Kahn Reactions in Experimental Syphilis.—Wakerlin and Horrall feel that, despite a certain tendency to false positiveness in rabbits, the Kahn test furnishes a somewhat more desirable serologic reaction for use in studies in experimental syphilis in these animals than the Wassermann test, since the Kahn reactions are not interfered with by anticomplementary serums, and since the greater sensitiveness of the Kahn reaction renders it a more valuable index of the efficacy of therapeutic measures, particularly when treatment is instituted early in the course of the disease.

Specific Allergic Skin Reaction in Coccidioidal Granuloma.—Jacobson makes a preliminary report on an attempt to elicit a specific allergic cutaneous reaction in patients and in experimental animals suffering from coccidioidal granuloma. The antigen used for the purpose of eliciting this allergic cutaneous manifestation consisted of *Coccidioides immitis* filtrate, which was obtained by means of a Berkefeld filter from Sabouraud's boullion, containing a ten days' growth of the organism of *Coccidioides*, incubated at 37 C. The filtrate is nontoxic to persons free from the disease, but when it is injected cutaneously into subjects infected with *Coccidioides immitis*, a characteristic inflammatory reaction of the skin around the site of the needle puncture ensues.

Autohemotherapy in Herpes Zoster.—Beeson has treated seven patients who had herpes zoster solely with autohemotherapy. The usual dose was 10 cc. of autogenous blood given every three or four days, as a rule. None of the cases showed postzosterian neuralgia. A single injection of 10 cc. of autogenous blood entirely relieved the pain of two patients, and aided in quickly healing the lesions on the skin. Two others received three injections each within ten days, at which time they were about free from the lesions. In all, these seven patients received sixteen injections of autogenous blood.

Archives of Otolaryngology, Chicago

8: 377-503 (Oct.) 1928

*Intrinsic Cancer of Larynx Operated on by Laryngofissure: Immediate and Ultimate Results. St. C. Thomson, London.—p. 377.
Ethmoiditis in Infants and in Young Children: Seven Cases with Accompanying Eye and Orbital Complications. C. F. Theisen, Albany, N. Y.—p. 386.
Lower Nasal Deflection: New Operation for Its Correction. S. Cohen, Philadelphia.—p. 399.
Diagnosis and Treatment of Chronic Maxillary Sinus Infection. E. C. Sewall, San Francisco.—p. 405.
Cystlike Cavity in Nasopharynx. E. W. Hagens, Chicago.—p. 420.
*Treatment of Dysphagia in Tuberculosis of Upper Air Passages: 100 Cases. H. P. Schugt, New York.—p. 424.
New Technic for Nasal Plastic Operations. J. D. Kelly, New York.—p. 433.
Blind Peritonsillar Abscess Resulting in Death from General Peritonitis Discovered Postmortem. F. T. Waterville, Me.—p. 446.
Plastic Surgery. J. E. Sheehan, New York.—p. 448.

Intrinsic Cancer of Larynx: Laryngofissure.—Over a period of twenty-eight years, Thomson has operated through a laryngofissure on seventy persons with intrinsic cancer of the larynx. Of thirty-four patients alive today, thirty-two have survived periods varying from three to nineteen years from the date of operation. Of the seventy patients, eighteen have died from other causes, without recurrence. Of these, thirteen had lived a minimum period of three years without any recurrence, while three of them died ten or more years after operation. There were seven deaths from malignant diseases elsewhere, without recurrence. There were eleven deaths from local recurrences. Of the seventy patients in whom laryngofissures were performed (two of the seventy having been operated on for a local recurrence and two requiring a supplementary laryngofissure), two died within forty-eight hours of the operation. A third patient died on the fourth day from rupture of the esophagus due to postanesthetic vomiting.

Treatment of Dysphagia in Tuberculosis of Upper Air Passages.—Schugt's report deals principally with 100 patients with advanced cases of laryngeal and pulmonary tuberculosis who were suffering from dysphagia. He feels that the most conservative method for the control of dysphagia is actinotherapy with ultraviolet rays. He uses the Kromayer mercury quartz lamp. Results have not been obtained with the indirect rays reflected through the quartz tube attached to the lamp. Some patients report less pain after the first treatment of three minutes. In a series of patients treated by irradiation alone, the pain on swallowing was relieved, and the use of other methods was thereby made unnecessary. In another series of cases, the pain recurred when the irradiation had been discontinued for a longer period. A noticeable improvement in the laryngeal symptoms was observed only after frequent irradiation combined with other treatment. On such patients whose pain does not disappear or grows worse or on whom this treatment cannot be carried out, surgical measures must be resorted to. The quickest results may be achieved in many cases by the resection of the superior laryngeal nerve (sensory nerve of the

V 9
192

larynx). This operation, however, should not be undertaken in extremely debilitated patients. In such cases, good results may follow the injection of the superior laryngeal nerve with alcohol.

Canadian M. Association Journal, Montreal

19: 403-518 (Oct.) 1928

*Acute Articular Rheumatism and Other Members of Rheumatic Cycle. C. P. Howard and E. S. Mills, Montreal.—p. 403.
Uterine Hemorrhage: Treatment. T. S. Cullen, Baltimore.—p. 411.
*Preoperative Treatment of Exophthalmic Goiter by Combination of Iodized Fatty Acid and Vitamins A and D. G. L. Adamson and A. T. Cameron, Winnipeg, Man.—p. 420.
*Value of Tryparsamide as Provocative Agent in Diagnosis of Neurosyphilis. E. C. Menzies, Verdun, Que.—p. 427.
Complement Fixation Test in Scarlet Fever: Importance in Carriers. F. Green, Montreal.—p. 431.
Statistics and Mortality Rate from Diabetes. I. M. Rabinowitch, Montreal.—p. 435.
*Occurrence of Blood Dyscrasias Following Administration of Neoarsphenamine. W. R. Kennedy, Montreal.—p. 539.
Results of Operative Treatment of Duodenal Ulcers. J. A. MacFarlane, Toronto.—p. 442.
Fibroma of Bladder. E. C. Smith, Edmonton, Alta.—p. 444.
Cooperation of Health Departments and Hospitals. T. H. Whitelaw, Edmonton, Alta.—p. 446.
Relation of Practicing Physician to Public Health Activities. J. Wallace, New York.—p. 449.
*Case of Abdominal Injury in Child. H. M. Elder, Montreal.—p. 456.
Case of Chyluria Due to Filaria Bancrofti, with Lymph Varix in Bladder Wall. R. MacKenzie, Montreal.—p. 458.
Case of Cerebellar Abscess. G. F. Boyer, Toronto.—p. 459.
Anaphylaxis from Pollen Introduced by Bee Sting. D. F. Gibb, Oak Lake, Man.—p. 461.

Acute Articular Rheumatism.—During three years at the Montreal General Hospital there were 4,760 medical and pediatric admissions, of which 241 were for acute articular rheumatism or its complications, carditis, chorea and erythema, an incidence of 5 per cent. These cases are analyzed by Howard and Mills. An arthritis occurred in 55.7 per cent under observation, but if one includes the arthritis noted in the past medical history, it was present at some period of the disease in 80 per cent. Of the cardiac manifestations, there was an acute or chronic endocarditis in 68 per cent; myocarditis in 41 per cent, and pericarditis in 17 per cent. Only 4.5 per cent of the series showed definite arterial disease. There was a slight or moderate anemia and a leukocytosis of some degree in 70 per cent of the series. Tonsillitis occurred in 46 per cent. Acute or chronic pleurisy was surprisingly frequent (15.3 per cent). Chorea was present in only 13.3 per cent of the series, comprising as it did but a small number of children. Some form of erythema or purpura was noted in 9 per cent. The average hospital stay per patient was six weeks. Twenty per cent were discharged as "cured"; 64 per cent as improved, and 6 per cent as unimproved. There was a mortality of 9 per cent.

Preoperative Treatment of Exophthalmic Goiter.—Adamson and Cameron report their experiences with a preparation of iodized jecoleic acid, incorporated with a vitamin concentrate from cod liver oil, in the preoperative treatment of eleven cases of exophthalmic goiter. The results obtained were comparable to those effected with compound solution of iodine.

Diagnostic Value of Tryparsamide in Neurosyphilis.—Menzies reports his results with the use of tryparasamide as a provocative agent in the diagnosis of neurosyphilis, in order to give more accurate knowledge as to the spinal fluid Wassermann reaction. A moderate number of cases, while showing a positive blood Wassermann reaction, exhibited a negative cerebrospinal Wassermann reaction and atypical physical and mental symptoms. There were six such cases in a series of thirty-eight. A provocative dose of tryparsamide given to these patients rendered the cerebrospinal fluid Wassermann reaction positive in five cases and in one the gold curve also. In other cases the picture presented by the blood and spinal fluid Wassermann reactions was similar to that in these six cases. In some cases the mental and physical symptoms were such as to lead one to suspect neurosyphilis. A provocative dose of tryparsamide given to these patients did not have any effect on the spinal fluid, and the subsequent history of these patients showed that syphilis had not invaded their nervous system. Cases of cerebrospinal syphilis with negative spinal fluid Wassermann reactions usually show suggestive signs in the cells, gold curve or chemical reactions.

Blood Dyscrasias.—Kennedy cites the case of a patient who developed in the course of antisyphilitic treatment with neoarsphenamine a hemorrhagic diathesis with bleeding from the gums, expistaxis and hematuria. There was no antecedent history of a similar character in either the family or the personal history. Of particular interest were the blood conditions—a much reduced platelet count, a prolongation of the bleeding time and nonretractility of the clot. With cessation of bleeding there was a rapid return to normal of the blood platelets and bleeding time. In short, there existed a toxic thrombopenic purpura or purpura hemorrhagica.

Rupture of Liver and Intussusceptions of Traumatic Origin.—Elder's patient was a boy, aged 10, who stated that both wheels of a motor car had passed over his abdomen. The symptoms led to a tentative diagnosis of ruptured bowel, and laparotomy was decided on. Exploration revealed a laceration about 2 inches (5 cm.) long in the quadrate lobe of the liver, a laceration along the longitudinal sulcus, and stellate lacerations of the tail of the caudate lobe, all of which were bleeding freely. This hemorrhage was controlled by the insertion of mattress sutures of catgut. The stomach, duodenum and spleen were examined, and found normal. The small intestine was followed from the duodenojejunal flexure to the cecum, and three intussusceptions were found, the largest being about 2 inches in length. These were milked out, and the remainder of the intestinal tract and the bladder were explored, but no evidence of injury was found. In spite of a stormy convalescence, the boy made a perfect recovery.

Endocrinology, Los Angeles

12: 377-538 (July-Aug) 1928

Studies of Endocrine Glands: III. Thyroid. C. H. Lawrence and A. W. Rowe, Boston.—p. 377.
Results of Replacement Therapy in Hypophysectomized Puppy: Treatment with Pituitary Heterotransplants. F. L. Reichert, San Francisco.—p. 451.
*Route of Absorption of Active Principles of Posterior Lobe of Hypophysis. A. J. McLean, Boston.—p. 467.
Technic of Gland Transplantation. H. L. Hunt, New York.—p. 491.
*Antidiuretic Effect of Pituitary Oxytocic and Pressor Principles on Water Diuresis in Man. A. M. Hjort, Hanover, N. H.—p. 496.
Hypersensitivity to Insulin: Difference from Synthalin and Glukhorment. E. L. Bortz, Philadelphia.—p. 501.

Route of Absorption of Pituitary Extracts.—Quantitative physiologic evidence (uterus and melanophore assays) is adduced by McLean to prove not only that presumptive pituitary extract is present in canine, bovine and human blood plasma and cerebrospinal fluid, but that it is probably initially absorbed from the gland into the body solely by a vascular route. The detectible substance behaves as if it were at least two entities, is diminished by major infective processes and starvation, and is increased during anabolic processes.

Antidiuretic Effect of Pituitary.—Experiments were made by Hjort on three groups of healthy young men. It was found that the antidiuretic effect of extracts of the posterior pituitary body is due to the pressor principle. Whereas the oxytocic principle has a vigorous effect on the uterine movements, it has little if any effect on the smooth muscles of the vascular system and of the gastro-intestinal tract. Vasopressin is the principle which has a pronounced stimulatory action on the vascular system and gastro-intestinal tract and only a feeble one on the uterine movements.

Journal of Industrial Hygiene, Baltimore

10: 255-294 (Oct.) 1928

Development of Industrial Hygiene in Canada. R. M. Hutton, Toronto.—p. 255.
Inhalation Experiments with Certain Lacquer Solvents. H. F. Smyth and H. F. Smyth, Jr., Philadelphia.—p. 261.
*Method of Action of Silica Dust in Lungs. P. Heffernan and A. T. Green, Buxton, Derbysh, England.—p. 272.
Gravimetric Determination of Dust Inhaled by Workmen. A. I. Burstein, Odessa, Russia.—p. 279.

Action of Silica Dust in Lungs.—Heffernan and Green feel that the evidence adduced to show that the silica ion is toxic to animals is not convincing. The evidence to the contrary is strong. Silica in stable combination and crystalline silica appear to be harmless while in those states. Colloidal silica is harmful to certain animal tissues when brought into

surface contact with them. When administered intravenously in sufficiently large doses and in an active colloid condition, it may cause immediate death. The harmful effects of colloidal silica appear to be due to its powerful potentialities as a colloid, rather than to any toxicity of the silica ion. Pulmonary silicosis is probably caused by the colloidal action of hydrated silica, formed from minute particles of silica dust disseminated through the pulmonary tissue. There is evidence to show that the activity of colloidal silica in the lungs may be prevented by protecting the silica dust with a coating of a substance which is known to coagulate colloidal silica. Such substances are clay, carbon or shale dust. Possibly other colloids, e. g., stannic acid solution, may be capable of acting in the tissues in a manner similar to hydrated silica.

Journal of Nervous and Mental Disease, New York

68: 337-448 (Oct.) 1928

*Encephalitic Respiratory Sequelae: With Periods of Unconsciousness and Convulsions. H. G. Wolff and W. G. Lennox, Boston.—p. 337.
Prevention of Mental and Nervous Diseases. B. Sachs, New York.—p. 355.
Postpartum Schizophrenias. G. Zilboorg, White Plains, N. Y.—p. 370.
*Thyroidectomy in Mentally Disturbed Patients with Exophthalmic Goiter. J. L. DeCourcy, Cincinnati.—p. 384.

Respiratory Sequelae of Encephalitis. — Wolff and Lennox have studied three patients who showed respiratory abnormalities following encephalitis. The first patient, in addition to respiratory seizures of rapid breathing without apnea, had generalized convulsive attacks occurring independently of, or following the respiratory disturbance. The other two had paroxysms of apnea in full inspiration with spasm of the respiratory muscles, followed by loss of consciousness and convulsive movements. The authors believe that convulsions produced in experimental animals by greatly increasing the intrathoracic pressure are comparable to the symptoms observed in the last two patients. Clinical observations on one of these patients seemed to show that the intensity of respiratory seizures, like the convulsions occurring in other conditions, could be altered by changes in the chemical composition of the blood.

Thyroidectomy in Mentally Disturbed Patients with Exophthalmic Goiter.—DeCourcy reports twelve cases in which a psychosis was relieved by operation. His experience with goiter surgery in mentally unbalanced patients has led him to believe that, when a frank psychosis coexists with exophthalmic goiter, thyroidectomy offers a fair prospect of relieving the mental disturbance. He has had occasion to operate on fourteen insane patients with exophthalmic goiter, and all but two of them made complete mental recoveries and have remained normal to date. Two of these patients were young subjects, in whom a diagnosis of dementia praecox had been made and a poor prognosis given; yet both recovered. In thirteen cases the condition of the thyroid gland was hyperplastic goiter; in the fourteenth, toxic adenoma was present with some evidence of hyperplasia.

Journal of Pharmacology & Exper. Therap., Baltimore

34: 111-237 (Oct.) 1928

*Site of Toxic Action of Nicotine on Respiratory Mechanism. J. E. Thomas and F. E. Franke, St. Louis.—p. 111.
*Absorption of Quinine and Oxyquinoline Sulphate Through Vagina. D. I. Macht, Baltimore.p. 137.
Rôle of Liver in Controlling Distribution of Blood. A. R. McLaughlin, East Lansing, Mich.—p. 147.
*Prevention of Experimental Effusions by Calcium Salts. H. Gold, New York.—p. 169.
Toxicity of Sodium Fluosilicate. S. Marcovitch, Knoxville, Tenn.—p. 179.
Action of Acridine Antiseptics—Acriflavine and Rivanol—on Streptococci: Subcutaneous Infections in Mice. C. H. Browning and R. Gulbransen, Glasgow.—p. 187.
Ergotamine Tartrate: Its Direct Hyperglycemic Action and Influence on Hyperglycemia Produced by Epinephrine in Normal Unanesthetized Dogs. G. E. Farrar, Jr., and A. M. Duff, Jr., Baltimore.—p. 197.
IV.: Rhythmic Contractions of Ureter as Influenced by Pituitary Extract and by Histamine. C. M. Gruber, St. Louis.—p. 203.
*Mercury Diuresis. K. I. Melville and R. L. Stehle, Montreal.—p. 209.
Fate and Toxicity of Bromine and Chlorine Containing Anesthetics. G. H. W. Lucas, Toronto.—p. 223.

Site of Toxic Action of Nicotine on Respiratory Mechanism.—A method is described by Thomas and Franke for differentiating between the central and peripheral action of drugs on the respiratory mechanism. Essentially it provides a means of determining the functional state of the respiratory center in a paralyzed animal. This is accomplished by observing the activity of a portion of the diaphragm which is protected from the local action of the drug by excision but retains its connection with the central nervous system through its intact phrenic nerve. The administration of large doses of nicotine was generally followed within less than eight minutes by complete curare-like paralysis of the phrenic nerve supplying the intact side of the diaphragm. Sciatic paralysis occurred somewhat later, as a rule. The contractions of the intact diaphragm were so greatly weakened that they were probably of little use in respiration within less than one third of the time required for the development of complete paralysis. Without exception, the respiratory center continued to function, as indicated by rhythmic contractions of the excised portion of the diaphragm, after more than a fatal dose of nicotine had been given and complete peripheral paralysis had been demonstrated in the intact part of the diaphragm. In a great majority of the experiments available evidence indicates that central respiratory failure did not occur as long as the animal was under observation. However, a few of the results pointed to failure of the central respiratory mechanism, but always definitely later than the peripheral paralysis of the diaphragm. The conclusion is drawn that failure of the respiratory mechanism under the conditions of these experiments, including ether anesthesia and artificial respiration, is not primarily due to the central action of nicotine but to a curare-like paralysis affecting the respiratory muscles.

Absorption of Quinine Through Vagina.—The data obtained by Macht are presented as conclusive evidence that both quinine bisulphate and oxyquinoline sulphate can be and are absorbed from the vaginal tract of experimental animals when instilled in aqueous solutions. He emphasizes the dangers of topical or local applications of drugs to mucous membranes, the possible absorption of such drugs into the general circulation, and the consequent systemic effects and even poisoning which may result, are not borne in mind.

Prevention of Effusions by Calcium Salts.—Gold states that the intravenous injection of sodium iodide in cats and dogs, and thiosinamine in dogs, failed to produce effusions into the serous cavities, contrary to the statements in the literature. Experiments carried out on cats show conclusively that the subcutaneous injection of calcium chloride in doses that cause no appreciable toxic symptoms in this animal diminishes or prevents the formation of pleural exudates produced by the intrapleural injection of a solution of copper sulphate. These experiments also show that the degree to which the effusion is inhibited depends on the intensity of the irritation as well as on the dose of calcium. A serious limitation to the practical application of the antagonism is the fact that the effect of more intense irritation is not appreciably inhibited by any dose of calcium and that the larger doses of calcium produce severe toxic symptoms.

Mercury Diuresis.—Melville and Stehle found that mercuric chloride dissolved in serum has an extremely marked diuretic action when injected intravenously. When injected into one of the renal arteries, mercuric chloride produces only diminution of urine secretion. This result, together with the conclusions which may be drawn from the composition of the urine secreted, indicate that the diuresis is due to an extrarenal action. The diuresis is not accompanied by any increase in lymph flow from the thoracic duct. Except for the latent period before diuresis begins, the action of mercuric chloride is identical with that of merbaphen.

Journal of Urology, Baltimore

20: 371-519 (Oct.) 1928

Epithelial Neoplasms of Urinary Bladder. K. Frater, Rochester, Minn.—p. 371.
*Small Carcinomas of Prostate Gland. E. F. Hirsch and L. E. Schmidt, Chicago.—p. 387.
Carcinoma of Prostate. B. S. Barringer, New York.—p. 407.
*Structure and Function of Ureter During Pregnancy. J. Hofbauer, Baltimore.—p. 413.
Some Accidents of Renal Surgery. N. P. Rathbun, New York.—p. 427.
Enormous Branched Renal Calculus, Associated with Multiple Cysts of Kidney. B. A Thomas, Philadelphia.—p. 451.
Nephrolithiasis: Case. L. F. Milliken, Philadelphia.—p. 456.
Acute Hydronephrosis: Case. J. B. Haines, Philadelphia.—p. 458.
Sarcoma of Kidney: Case. W. H. Thomas, Philadelphia.—p. 460.
Urinary Lithiasis: Three Cases. W. J. Ezickson, Philadelphia.—p. 462.

V 91
1928

Pneumocysto-Ureteropyelograph: Case. B. A. Thomas, Philadelphia.—p. 464.
Foreign Body in Urinary Bladder: Case. W. H. Haines, Philadelphia.—p. 467.
Pyelolithotomy Complicated by Gas Bacillus Infection Originating in Renal Calculus. P. A. Ferrier and W. P. Bliss, Pasadena, Calif.—p. 471.
Myositis Ossificans Following Suprapubic Prostatectomy. H. L. Kretschmer, Chicago.—p. 477.
Bilateral Vesical Diverticula at Ureteral Orifices Visualized with Lipiodol: Case. J. W. Visher, Evansville, Ind.—p. 481.
Spermatocele. M. F. Campbell, New York.—p. 485.
Priapism: Case. R. E. Van Duzen, Dallas, Texas.—p. 497.
Angioma of Glans Penis: Case. T. E. Gibson, San Francisco.—p. 501.
Catheter for Ureteropyelographic Study and Aseptic Catheterization of Ureter. S. R. Woodruff, New York.—p. 505.
New Improved Cystoscope. A. Ravich, New York.—p. 511.
New Irrigating Ureteral Bougie. A. Ravich, New York.—p. 517.

Small Carcinomas of Prostate.—The eleven cases reported by Hirsch and Schmidt are said to emphasize again the need of a careful microscopic examination of tissues from many places of the prostate gland removed with the clinical diagnosis of benign enlargement in order that small malignant growths do not escape notice.

Function of Ureter in Pregnancy.—Experiments made by Hofbauer tend to show that the depressing effect of bile salts both on the amplitude and on the rate of ureteric contractions may be an important factor in offering an adequate explanation for the atonic condition of the ureter in pregnant women. The stimulating effect of minute doses of epinephrine on the ureter is very striking. In addition, the experiments tend to show that there exists not only an antagonism of the action of bile salts and epinephrine on ureteral activity but also a rather definite quantitative relationship between these two substances in their respective effects on the automatic contractions of the ureter.

Kansas M. Society Journal, Topeka

29: 319-354 (Oct.) 1928

Treatment of Acute Middle Ear Disease. L. B. Spake, Kansas City.—p. 319.
Fusospirillosis. L. P. Warren, Wichita.—p. 321.
Was Ambroise Pare a Murderer? T. G. Orr, Kansas City, Mo.—p. 326.
Leukocyte Count in Acute Appendicitis. C. A. Hellwig, Wichita.—p. 330.
Posterior Root Section for Relief of Pain. W. C. Menninger, Topeka. p. 334.

Kentucky Medical Journal, Bowling Green

26: 491-550 (Oct.) 1928

What Is Orthodox in Healing Art? J. H. Blackburn, Bowling Green.—p. 493.
Abdominal Emergencies. R. M. Evans, Louisville.—p. 497.
Cystitis. C. C. Woods, Ashland.—p. 503.
Acute Mastoiditis Associated with Facial Paralysis and Sinus Thrombosis: Two Cases. A. L. Bass, Louisville.—p. 505.
Fracture of Femur Treated by Bone-Key Method. G. A. Hendon, Louisville.—p. 508.
Cesarean Section Under Local Anesthesia. W. Hume, Louisville.—p. 509.
Repair of Osseous Tissue from Macroscopic Standpoint. I. A. Arnold, Louisville.—p. 510.
Atypical or Sporadic Hemophilia. J. W. Bruce, Louisville.—p. 514.
Tularemia: Three Cases. O. O. Miller, Louisville.—p. 516.
Id. C. H. Harris, Louisville.—p. 518.
Prognosis of Craniocerebral Injuries. J. J. Moren, Louisville.—p. 520.
Thyroiditis. W. O. Johnson, Louisville.—p. 531.
Postoperative Psychosis. W. E. Gardner, Louisville.—p. 537.
Carcinoma of Sigmoid: Case. J. G. Sherrill, Louisville.—p. 546.

Missouri State M. Association, St. Louis

25: 457-502 (Oct.) 1928

Uterine Hemorrhage: Treatment. T. S. Cullen, Baltimore.—p. 457.
Progress of Prostatic Surgery. J. H. Sanford, St. Louis.—p. 466.
*Hematuria and Pyuria: Urologic Aids to General Practitioner. O. J. Wilhelmi, St. Louis.—p. 468.
Focal Infection: Operative Treatment. V. V. Wood, St. Louis.—p. 473.
*Scaphoid Scapula. H. A. Kemp, Mount Vernon.—p. 477.
Diagnosis of Chronic Appendicitis. G. A. Beedle, Kansas City.—p. 479.

Treatment of Hematuria.—Wilhelmi would not treat hematuria expectantly because frequently inflammatory conditions of the bladder are caused by infections higher up. Calculi in the urinary tract usually cause infected and alkaline urines. Dirty urines which contain pus but no bacteria frequently signify tuberculosis of the kidney or bladder. A profuse and painless hematuria usually signifies bladder tumor. Old men with increasing nocturia and frequency most probably are suffering from enlarged prostates. Ureteral and kidney conditions often simulate acute appendix or gallbladder disturbances. An accurate diagnosis and essential preoperative knowledge can be obtained in urologic cases only by means of cystoscopy and pyelography.

Scaphoid Scapula.—Kemp says that of all patients at the Missouri State Sanatorium, 90.8 per cent had scaphoid scapula. The percentage of scaphoid scapula in the various age groups was much higher than the percentage of scaphoid scapula in any normal group of individuals. A relevant family history and scaphoid scapula were found together in more than two thirds of these cases.

Northwest Medicine, Seattle

27: 455-500 (Oct.) 1928

Defense Fund. R. J. O'Shea, Seattle.—p. 455.
Problems Confronting Us. A. Barclay, Coeur D'Alene, Idaho.—p. 456.
Forms of Osteomyelitis. D. B. Phemister, Chicago.—p. 460.
I. Heart Beat: II. Physiologic Basis for Clinical Interpretation of Cardiac Irregularities: III. Physiologic Principles Underlying Adaptation of Heart. C. J. Wiggers, Cleveland.—p. 466.
*Syndrome of Acute Coronary Occlusion as Produced by Thrombosis of Auricle. N. W. Jones and D. W. Baird, Portland, Ore.—p. 469.
Otitis Media. J. T. Dowling, Seattle.—p. 472.
"To Hear or Not to Hear is the Question": Appeal to Family Physician for Early Detection and Treatment of Deafness. F. E. Brown, Salem, Ore.—p. 474.
*Biochemistry and Geochemistry of Iodine: Etiology and Prophylaxis of Endemic Goiter. G. Lunde, Oslo, Norway.—p. 479:
Occiput Posterior Positions and Their Treatment. M. S. Sichel, Portland, Ore.—p. 485.

Thrombosis of Auricle Causes Angina Symptoms.—Jones and Baird report on two patients who suffered during life from the typical symptoms of acute coronary occlusion and in whom at autopsy no interference with the coronary circulation was found. The patients were aged 65 and 55, respectively. The autopsy in the first case disclosed a thrombosis of the right auricular appendage, with suppuration and cyst formation within its interior; moderate atherosclerosis of the aorta and coronary arteries; hemorrhage infarcts of the right lung and anemic infarcts of the right kidney in the presence of thrombosis of the right renal vein. The anatomic diagnosis in the second case was thrombosis of the left auricular appendage; marked chronic mitral endocarditis with stenosis, and hydrohemopericardium.

Fish Products Contain Iodine.—Lunde stresses the fact that fish products are a useful and simple means of supplementing the iodized salt prophylaxis. In the fish products examined by him, and especially in the easily transportable canned goods, a high content of iodine in organic combination was present.

Pennsylvania Medical Journal, Harrisburg

32: 1-48 (Oct.) 1928

Thirty Years of Progress. T. G. Simonton, Pittsburgh.—p. 1.
Acute Purulent Mastoiditis. S. Cohen, Philadelphia.—p. 5.
Electrocautery in Treatment of Chronic Anterior Urethritis of Glandular Type. L. E. McCrea, Philadelphia.—p. 9.
Second Infection with Syphilis. S. S. Greenbaum, Philadelphia.—p. 11.
Medical Treatment of Gallbladder Disease. M. E. Rehfuss, Philadelphia.—p. 13.
Fracture of Pelvis with Separation of Symphysis Pubis. H. H. Holderman, Shenandoah.—p. 16.
Cure of Duodenal and Gallbladder Adhesions by Attached Omental Graft. L. Stewart, Clearfield.—p. 18.
Functional Nervous Disorders of Stomach and Intestines. R. S. Boles, Philadelphia.—p. 20.
Avoidable Errors in Death Certificates. H. B. Wood, Harrisburg.—p. 25.

Philippine Islands M. Association Journal, Manila

8: 375-410 (Sept.) 1928

Vasomotor Reactions to Depressor Reflex in Peripheral and Splanchnic Areas. J. P. Celis, Manila.—p. 375.
Mongolian Blue Spots Among Filipinos. P. D. Gutierrez and J. Hizon, Manila.—p. 380.
Retropharyngeal Abscess. C. D. Ayuyao and E. Y. Dizon, Manila.—p. 383.
Diagnostic Problems of Leprosy. J. Rodriguez, Culion Leper Colony.—p. 385.

Public Health Journal, Toronto

19: 431-500 (Oct.) 1928

Pathology of Bone Tuberculosis. R. I. Harris, Toronto.—p. 451.
Our Voluntary Assistants. G. G. Melvin, Fredericton, N. B.—p. 456.
Water Supply of Vancouver: Unpurified Pure Water. F. T. Underhill, Vancouver, B. C.—p. 463.
Toronto Venereal Disease Clinic. G. Bates, Toronto.—p. 466.
*Mastoiditis Complicating Scarlet Fever. J. G. Strachan, Toronto.—p. 473.

Mastoiditis Complicating Scarlet Fever.—In the Isolation Hospital, Toronto, in the five year period from October, 1922, to October, 1927, among 3,197 cases of scarlet fever, Strachan reports 437 cases of otitis media (approximately 13 per cent), and of these, ninety patients, or about 20 per cent of those with otitis media, showed mastoiditis. The mastoiditis was acute in fifty-eight and subacute in thirty-two cases. In the ninety patients with mastoiditis, twenty-eight had a bilateral involvement, necessitating in all 118 operations.

Rhode Island Medical Journal, Providence

11: 155-172 (Oct.) 1928

Etiology and Treatment of Abscess of Lung. F. B. Berry.—p. 157.
Transfusion of Blood. J. G. Kelley, Providence.—p. 161.

Southern Medical Journal, Birmingham, Ala.

21: 787-886 (Oct.) 1928

Fungating Lymphatic Tuberculosis or Sporotrichial Type of Skin Tuberculosis: Case. C. A. Simpson, Washington, D. C.—p. 787.
*Fractures of Base of Radius. I. Cohn, New Orleans.—p. 791.
*Bilateral Ligation of Vas as Prevention of Epididymitis in Prostatectomy. H. W. McKay, Charlotte, N. C.—p. 799.
*Chronc Cystic Arachnoiditis. R. G. Spurling, Louisville, Ky.—p. 804.
Foreign Bodies in Air and Food Passages. A. K. Hoge, Wheeling, W. Va.—p. 811.
*Paget's Disease. A. O'Reilly, St. Louis.—p. 815.
*Sacro-Iliac Displacements. F. G. Hodgson, Atlanta, Ga.—p. 820.
*Operative Lengthening of Femur. L. C. Abbott and C. H. Crego, St. Louis.—p. 823.
Removal of Body of Uterus and Cervical Mucosa with Endotherm Needle. G. H. Noble, Jr., Atlanta, Ga.—p. 832.
*Uses of Dextrose and Insulin in Diseases of Children. G. Y. Gillespie, Greenwood, Miss.—p. 834.
Leprosy: Advances in Serology and Immunology. F. Wise, New York.—p. 837.
Differential Diagnosis of Stones in Right Upper Quadrant. R. E. Barr, Orange, Texas.—p. 842.
Surgical Indications and End-Results of Operation for Duodenal Ulcer. H. A. Gamble, Greenville, Miss.—p. 844.
Hyperplastic Spheno-Ethmoiditis. F. E. LeJeune, New Orleans.—p. 847.
Retinal Behavior as Influenced by Sphenoid Sinus. M. E. Brown, New Orleans.—p. 850.
*Correlation of Pathologic Findings and End-Results in Cholecystectomy. L. S. Lippincott, Vicksburg, Miss.—p. 853.
*Persistence of Symptoms After Cholecystectomy. C. S. White and A. L. Riddick, Washington, D. C.—p. 857.
*Albuminuria in New-Born: I. D. Greer, H. Johnson and R. Johnson, Houston, Texas.—p. 860.
Trachoma in State's Health Program. P. D. Mossman, Rolla, Mo.—p. 865.
Problems of Bladder Neck Obstruction. J. R. Caulk, St. Louis.—p. 869.
Ulcerating and Sclerosing Granuloma: So-Called Granuloma Inguinale: Case. C. B. Willmott, Louisville, Ky.—p. 872.
State Tuberculosis Program. J. M. Graham, Montgomery, Ala.—p. 875.

Fractures of Base of Radius.—Injury of the wrist and forearm in children, according to Cohn, not uncommonly produces an epiphyseal fracture. Proper interpretation depends on a knowledge of the normal joint. Anesthesia should be resorted to in all ages. Reduction is essential for function. The best of all splints is one which will fit the patient and not one which the patient has to be made to fit. On the whole, the molded plaster splint is to be preferred to any form of splint which is manufactured wholesale, and certainly it is superior to the padded board splint often advocated in textbooks. The forearm is not the same diameter from wrist to elbow. In order to immobilize the wrist on straight splints the bandage around the upper part of the forearm must be tight enough to interfere with circulation. The danger of Volkmann's ischemia is not to be overlooked. Those who have not been unfortunate enough to see a case of Volkmann's ischemia develop have missed an object lesson of great value. The molded plaster splint obviates the necessity of a great deal of padding. The after-care of these patients is very important. Frequent changing of dressing, mobilization of fingers, massage and baking are measures which should not be neglected. Prolonged immobilization is dangerous. End-results are good in proportion to proper differential diagnosis and treatment.

Prevention of Epididymitis by Ligation of Vas.—McKay advocates bilateral ligation of the vas as a prophylactic measure in all patients before prostatectomy is performed. It is preferable to ligate the vas before the preoperative treatment is begun. If the ligatures are removed from the vas, the lumen is soon patent and epididymitis may follow. Ligatures should then not be removed until after the twenty-first day. The effectiveness, painlessness and simplicity of the procedure make ligation of the vas of great importance in both suprapubic and perineal prostatectomy.

Chronic Cystic Arachnoiditis.—Spurling reports four cases of cerebral and two cases of cerebellar chronic cystic arachnoiditis. He says that this is a disease entity which is characterized by a localized, thickened, opaque arachnoid bound to the pia mater by adhesions, in the meshes of which there are accumulations of fluid. It may occur over the cerebrum, cerebellum or spinal cord. The condition is often clinically indistinguishable from tumor of the involved area of the central nervous system. The incidence of this disease is far greater than one would believe after reviewing the literature. The etiology is unknown. Local infections of low virulence or chronic irritation of the leptomeninges from absorption of a blood clot are suggested as being the most probable exciting factors. Treatment of the cerebellar cases resulted in a clinical cure. The treatment employed in the cerebral cases gave unsatisfactory results. Pertinent facts relative to the etiology, prognosis and treatment of this disease are scarce. They offer a problem of utmost importance that should engage the attention of both laboratory and clinical investigators.

Paget's Disease.—Ten cases are reported by O'Reilly, showing that Paget's disease is probably more common than is suspected, and that the average physician is not looking for it. In many cases the roentgen diagnosis is disregarded, as the disease is considered of only academic interest. Osteitis deformans is important, however, because it may be confused with syphilis, arthritis, osteomyelitis and especially with brain conditions. Failure to diagnose it may lead to needless operations. When a case seems to suggest Paget's disease, a complete set of skeletal pictures should be made.

Sacro-Iliac Displacements.—In each of the four cases reported by Hodgson there was gross displacement of the sacro-iliac joints, which could be seen distinctly in the roentgenogram and could be easily felt with the hands. The displacement still persists; yet none of these patients have the persistent low back pain or the referred sciatic pains characteristic of the class of cases discussed. Hodgson believes that the theory of sacro-iliac strain, relaxation, subluxation or dislocation as the chief causative factor in these cases of low back pain and sciatica will not hold true in all cases. Undoubtedly many of these cases are relieved by manipulations. Spectacular results have also been obtained by fixing the sacro-iliac joint by means of a bone graft (Smith-Peterson). Other cases have been relieved without any manipulation or operation, but by a removal of a focus of infection, by proper elimination in cases of intestinal stasis, by prostatic massage, or by correction of faulty posture and muscular relaxation. Low back pain with or without referred nerve pains may have a variety of causes. Every case must be studied carefully and that treatment instituted which best suits the individual.

Operative Lengthening of Femur.—Abbott and Crego have employed the method described by them in 1924 for the lengthening of the tibia and fibula. The details of the method are given. In the eight cases treated by this method, the smallest gain in length was 1.5 inches; the largest, 3.5 inches. The results have been highly satisfactory. The authors believe that the operation should not become a routine procedure, but should be reserved for those who are actually in need of it—for those who cannot be relieved by more conservative measures.

Use of Dextrose and Insulin in Malnutrition.—The mortality of marked malnutrition, of severe acute acidosis, of profound intestinal intoxication or of diarrhea in infants and children has always been extremely high, but Gillespie says that in many cases, if dextrose and insulin treatment are instituted early, before too extensive tissue injury has resulted from the rapid and overwhelming toxemia, spectacular results will be achieved and a great many lives may be saved.

Analysis of Cases of Cholecystectomy.—An analysis of laboratory observations in 100 cases of cholecystectomy with follow-up results in sixty-nine cases is given by Lippincott. Sixty-seven gallbladders were from females and thirty-three were from males; ninety-two were from white patients and only eight were from colored patients. The average age of all patients in this series was 42 years: females, 41 years;

V 91
192

males, 44 years. Macroscopic and microscopic tissue examination showed a predominant chronic inflammatory condition in eighty-six, a predominant acute inflammatory condition in ten, and no definite pathologic condition in four. Calculi were present in 47 per cent of all cases—in 46.5 per cent with chronic inflammatory and in 70 per cent with acute inflammatory disease. Positive cultures of the bile were obtained in 45 per cent of those patients with chronic inflammatory tissue in whom it was examined, and in two of four patients with acute inflammatory tissue. Microscopic examination of the appendix in those cases in which it was removed with the gallbladder indicated accompanying disease in most cases. Blood examination before operation in chronic cholecystitis showed a usual mild simple anemia and a slight increase in the total leukocyte count without much change in the polymorphonuclear percentage; in acute inflammatory disease, there was a somewhat more marked leukocytosis and a moderate increase in the polymorphonuclear cells. Albumin, casts and blood were frequent in the urine of patients with cholecystitis. The gastric acidity was usually moderately low. Follow-up statistics in sixty-nine cases showed forty-five patients reporting themselves as recovered, eighteen as improved and six as unimproved. Only six patients weighed less than before operation.

Persistence of Symptoms After Cholecystectomy.—After an analysis of 100 operations for cholecystitis, White and Riddick are convinced that excellent results may be expected in acute and subacute cases, and when symptoms are confined largely to the gallbladder. The failures may be ascribed to: (1) errors in diagnosis; (2) technical or mechanical errors, such as hernia, adhesions and stricture of the common duct; (3) intercurrent accident or disease, and (4) incomplete diagnosis. (Into this group will fall the greatest number of cases.)

Albuminuria in New-Born.—Greer et al. found that serum albumin does not appear to be frequently a normal constituent of the new-born baby's urine; on the contrary in their experience its presence to any marked degree has accompanied, in most cases, definite clinical disturbances of the mother or newborn child. Difficult labors and chronic nephritic conditions of the mother are evidently not necessarily followed by renal injury to the baby. The class of cases which hold the most interest are those in which the mothers suffered preeclamptic or eclamptic toxemia. Almost invariably the infant shows not only evidence of renal disease but usually marked physical disturbance which may be characterized by stupor, general nerve irritation, or convulsions in a few. A striking thing is the lack of any evidence, in the cases that have been followed, of permanent renal injury in those infants who exhibited urinary disturbance in the early days of life.

Virginia Medical Monthly, Richmond

55: 443-518 (Oct.) 1928

*Actinomycosis of Liver. W. S. Fulton and W. M. Sheppe, Wheeling, W. Va.—p. 443.
Diagnosis and Management of Occipitoposterior Cases. P. S. L. Moncure, Norfolk.—p. 448.
Management of Fractures. M. J. Payne, Staunton.—p. 451.
Preventable Diseases and Preventive Treatment. S. H. Nixon, Christiansburg.—p. 455.
Preventive Medicine — Relation of Obstetrics and Pediatrics. T. R. Bowers, Bristol.—p. 458.
Treatment of Uterine Tumors. G. B. Miller, Washington, D. C.—p. 463.
Human Side of Practice of Medicine. R. L. Cecil, New York.—p. 469.
Intermittent Vesicovaginal Fistula: Case. C. J. Andrews, Norfolk.—p. 472.
Treatment of Goiter. A. McGlannan, Baltimore.—p. 475.
Pyelitis of Infancy and Childhood. J. L. Blanton, Fieldale.—p. 479.
Kidney Infections During Pregnancy. R. M. LeComte, Washington, D. C.—p. 481.
Treatment of Peptic Ulcer. W. R. Graham, Richmond.—p. 483.
Chronic Appendicitis. H. M. Hayter, Abingdon.—p. 487.
Surgery of Accessory Sinuses. W. L. Gatewood, New York.—p. 490.
Dumb Rabies, Not Black Tongue. E. G. Williams, Richmond.—p. 491.

Actinomycosis of Liver.—A case of actinomycosis involving the liver alone is reported by Fulton and Sheppe. The features of the case were involvement of a single viscus, dense encapsulation of lesions, and marked "club" formation on the part of the organism. The portal of entry was believed to have been from carious teeth to ileum and appendix, and thence to the liver by way of the portal vein. The treatment was iodide therapy and high voltage roentgen irradiation.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Pickett-Thomson Research Lab., London

4: 1-250 (Nov.) 1928

Rôle of Streptococci in Acute Articular Rheumatism or Rheumatic Fever. D. Thomson and R. Thomson.—p. 1.
Id.: In Chorea. D. Thomson and R. Thomson.—p. 109.
Id.: In Erythema Nodosum. D. Thomson and R. Thomson.—p. 125.
Id.: In Carditis. D. Thomson and R. Thomson.—p. 131.

British Medical Journal, London

2: 593-638 (Oct. 6) 1928

*Treatment of Gangrene. W. S. Handley.—p. 593.
*Fallacy of Roentgen Rays in Abdominal Diagnosis. H. J. Paterson.—p. 595.
Id. F. Hernaman-Johnson.—p. 598.
Errors in Interpretation of Radiograms of Chest: Their Correction by Teleradiography. F. Roberts.—p. 599.
Case of Ureteral Stone. H. Williams and C. T. Holland.—p. 601.
*After-Effects of Surgical Procedures in Cases of Pulmonary Tuberculosis: I. Surgeon's Point of View. A. T. Edwards.—p. 602.
Id.: Physician's Point of View. F. G. Chandler.—p. 605.
Radium Therapy of Carcinoma of Cervix Uteri: Analysis of Results Obtained at Woman's Hospital, New York. G. G. Ward.—p. 607.
Radium in Treatment of Carcinoma Cervicis and Intractable Menorrhagia. E. F. Murray.—p. 609.
Subcutaneous Rupture of Pectoralis Major Muscle. D. McKelvey.—p. 611.
*Traumatic Separation of Intestinal Loop. P. N. Basu and A. Vasudevan.—p. 611.

Treatment of Gangrene.—In Handley's opinion the surgery of the sympathetic is yet in its infancy, and requires for its development a further study of the sympathetic system by anatomists and physiologists and of arterial disease by the pathologists. Many obscurities still remain. Leriche's operation has been justified by a number of brilliant successes in other conditions. Leriche himself does not recommend it for incipient or actual gangrene. Though some surgeons continue to use it for actual or threatened gangrene, Handley believes that it will be replaced by the method of alcohol injection, which secures the same result in a simpler and safer way without risk to the integrity of the artery, without initial vasoconstriction, and with more permanent vasodilatation. For these reasons he thinks alcohol injection is not a mere technical variation of Leriche's method, but a distinct advance on it, and that particularly in senile gangrene it is the vasomotor operation of choice. While vasomotor methods can be applied successfully in the early stage of gangrene to limit its spread and to restore the vitality of dying tissue, they find their main field of application in an earlier stage before gangrene has actually begun. A serious additional responsibility is thus placed on the medical man to whom complaint is first made of symptoms of arterial dystrophy likely to end in gangrene. On him it devolves to allow vasomotor surgery a fair field for its attempts to avert the loss of a limb.

Fallacy of Roentgen Rays in Abdominal Diagnosis.—Paterson insists that if the roentgenographic observations do not support the clinical signs and symptoms, they should be disregarded. An operation should rarely, if ever, be performed on a purely roentgenologic diagnosis. Likewise an operation which is advisable for clinical reasons should not be deferred through lack of roentgenologic confirmation. He urges closer cooperation between the surgeon and the roentgenologist. They should not work in watertight compartments. The surgeon should be present at the roentgenologic examination and draw his own conclusions from what he sees. Each should form an independent opinion and then in consultation try to agree on a diagnosis; likewise the roentgenologist and the physician should be present at the operation to see how far the condition found is in accordance with their previous conceptions. Such a practice would be to their mutual advantage, and would lead to greater accuracy in diagnosis.

Surgery in Pulmonary Tuberculosis.—Experience has convinced Edwards that the ideal to be sought is an adequate collapse of the whole of the involved lung. This can best be obtained by performing a preliminary phrenic evulsion and subsequently a two-stage thoracoplasty from the first to the tenth ribs posteriorly. In the majority of cases these operations

are done with a short interval, seven to fourteen days elapsing between the phrenic evulsion and the first stage, while the interval between the two stages of the thoracoplasty is from sixteen to twenty-one days. He has found that phrenic evulsion definitely diminishes the reaction of the first stage of thoracoplasty, apart from its subsequent compression value. Moreover, the division of the operation for thoracoplasty into two stages has undoubtedly lowered its operative mortality, and unquestionably allows of its successful performance on individuals in whom it would be otherwise impossible. With regard to partial thoracoplasty, it would seem, even with resection of considerable portions of a few ribs, that the compression is inadequate, since effective collapse of the thoracic cage is prevented by the remaining rigid chest wall.

Traumatic Separation of Intestinal Loop.—Basu and Vasudevan relate the case of a man who was knocked down by a motor bus. He was almost moribund, the pulse rate being 80 and the respirations 22. There were some superficial injuries to the scalp and the lower jaw. Two hours after admission the abdomen became distended and very tender. There was an inguinal hernia, which was completely reduced with gurgling, but the process was painful. He vomited food about five times during the night, and passed a motion and flatus. He grew rapidly worse, and, in spite of stimulants, died the next afternoon. At the necropsy a number of superficial abrasions were found over both extremities, and there was fracture of the right ulna. On the right side of the scrotum was seen a large swelling the size of a child's head, which was soft, boggy and edematous. The skin over it was discolored, bluish and peeling off. On incision it was found to be a hernia, and in the hernial sac was a piece of small intestine about 3 inches (8 cm.) long lying loose with the mesentery cut close to it. The edges of this piece were sharp and regular, and the mucous membrane was pale, without any evidence of inflammation. Just above this loose bit of intestine, and in the hernial sac, was another loop of small intestine. Between the sac and the skin was an abscess containing about 2 ounces (60 cc.) of purulent fluid. The peritoneum was red and inflamed; the omentum was also inflamed and covered with flakes of lymph. There was about 20 ounces (590 cc.) of turbid, purulent, blood-stained fluid in the peritoneum. On careful examination of the intestines, the detached portion was seen to have been situated about 7 feet below the duodenojejunal flexure; it was pale and without any inflammatory reaction. The margins of the free ends of the small intestines showed redness and inflammation to a distance of about three-fourths inch.

Edinburgh Medical Journal

35: 565-616 (Oct.) 1928

Subcutaneous Glomal Tumors: Painful Subcutaneous Nodule. D. M. Greig.—p. 565.
Signs of, and Tests for, Drunkenness. A. S. Currie.—p. 589.

Lancet, London

2: 739-794 (Oct. 13) 1928

Grand Curiosity as Exemplified in Life of John Hunter. S. Sprigge.—p. 739.
Jejunal and Gastrojejunal Ulcers: Review. A. F. Hurst and M. J. Stewart.—p. 742.
*Splenomedullary Leukemia in Roentgenographer. W. H. Evans and R. E. Roberts.—p. 748.
*Attitude of Child in Utero. J. W. Burns.—p. 751.
*Abdominal Tuberculosis with Extreme Emaciation. T. C. Hunter.—p. 752.
Hydatid Cyst with Jaundice. A. W. Gardiner.—p. 752.

Splenomedullary Leukemia in Roentgenographer.—Evans and Roberts report the case of a man who developed myeloid leukemia after ten years' continuous employment with the roentgen ray. The initial symptoms began a few months before the end of that time. He first complained of exhaustion, substernal pain and breathlessness on exertion toward the end of 1924, and these symptoms, with loss of weight and energy, continued during 1925. In August of that year splenic enlargement was noticed, and in December, 1925, a blood count showed 256,000 white cells with the typical picture of myeloid leukemia. The spleen reached the level of the umbilicus. In the early part of 1926, he was treated with benzene without improvement, but in July, 1926, roentgen treatment was started, with marked temporary benefit. The spleen shrank rapidly until it was only just palpable, and the white count in November, 1926, was 14,000. During the early part of 1927, however, the patient had a relapse, and further roentgen treatment proved ineffectual. The patient died in January, 1928, the last observations in November, 1927, indicating a myeloblastic termination. Autopsy was not permitted.

Position of Child in Utero.—Burns' patient was 32 years old and a multipara, with three living children out of five normal labors and one miscarriage. For some time she had been under treatment for bronchitis. There was severe cough, profuse mucopurulent expectoration, and some dyspnea, which did not respond well to the usual treatment. Throughout the antenatal period the child changed its position frequently. At the beginning of the thirty-ninth week, the position was transverse with the head in the right iliac fossa. The fetal heart sounds were heard loudly in the midline about 3 inches above the symphysis. External version was tried but it was found impossible to move the head out of the right iliac fossa. When an attempt was made to push the breech up toward the fundus, it rotated forward and could be brought almost over to the right side, but returned to its original position at once. A roentgenogram made at this time showed the child lying with the head hyperextended in the right iliac fossa and the thorax over the brim of the pelvis with the arms behind the back. The back was extended, and the thighs were extended with the legs flexed at the knees, so that the feet were approaching the head. External version was again attempted but without success, the reason being clear from a consideration of the attitude of the child. Pressure on the head in any direction only increased the extension, while the breech could not be manipulated on account of the extended limbs. Combined external and internal manipulation could not be carried out without an anesthetic, which was contraindicated by the chest condition. Cesarean section was performed the two hundred and eighty-third day of gestation. The operation did not present any difficulty and was quickly carried out.

Abdominal Tuberculosis with Extreme Emaciation.—Hunter's patient was aged 8 years 11 months and weighed 28 pounds (12.7 Kg.). There was extreme emaciation, anemia was marked, and the child was critically ill. Treatment by mercury vapor lamp for two minutes daily was instituted, irradiation being increased gradually to five minutes daily. No improvement was noted; in fact, the child became worse. She lost 4 pounds (1.8 Kg.). Then natural sun treatment was commenced, and she began to show very slight improvement. At her own request artificial sunlight treatment was restarted in May, 1926. The improvement continued, until in July and August a definite reduction of temperature took place. By the end of October, 1926, she had regained the 4 pounds she had lost and the temperature had reached 100 on only two occasions. Intensive treatment by natural sunlight had been possible up till now, owing to the exceptionally fine weather, and the patient was well tanned all over. The anemia was still marked, the blood count being 1,687,500 red cells, 4,350 white cells, and hemoglobin, 35 per cent. The child was discharged from the sanatorium in August, 1927, with a total gain in weight of 24¼ pounds (11 Kg.).

2: 795-848 (Oct. 20) 1928

Cardiovascular Diseases Since Harvey's Discovery. H. Rolleston.—p. 795.
Ciliary Movement of Trachea Studied in Vitro: Measure of Toxicity. L. Hill.—p. 802.
Jejunal and Gastrojejunal Ulcers. A. F. Hurst and M. J. Stewart.—p. 805.
*Regional Anesthesia and Innervation of Teeth. D. Stewart and S. L. Wilson.—p. 809.
Strangulated Incisional Hernia. H. Bailey.—p. 812.
Gangrenous Appendicitis in Nonagenarian. J. A. Berry.—p. 812.

Regional Anesthesia and Innervation of Teeth.—Stewart and Wilson report on an investigation into the causes of the residual sensation found in the pulps of teeth after injection of the inferior dental nerve. Evidence is brought forward to show that this is due to the supply to the pulp of fibers from the long buccal and the lingual nerves, and that if they are effectively blocked the residual pain will disappear.

Medical Journal of Australia, Sydney

2: 361-390 (Sept. 22) 1928

Medical Conditions in South Pacific. S. M. Lambert.—p. 362.
*Cancer and Chronic Insanity. W. A. T. Lind.—p. 378.
Sequelae to Epidemic Encephalitis. J. Bentley.—p. 379.

V 91
192

Cancer and Chronic Insanity.—Lind has investigated cancer in patients over 40 years of age who have resided fifteen years or more uninterruptedly in a mental hospital. The idea of limiting the study to patients of fifteen years' residence is to exclude those who became cancerous before they became insane, and those who developed cancer shortly after reception. By doing this, the incidence of cancer in those who have been living under known conditions and under observation for fifteen years can be shown. As the postmortem examination of every patient is compulsory by act in Victoria, the figures given are accurate. The general opinion seems to be that cancer is on the increase. In two institutions reported on there was an incidence of 9.7 per cent of carcinoma for the two places, which, speaking without reference, appears to be considerably below the figures given for the general population.

2: 391-420 (Sept. 29) 1928

William Harvey: Man and His Times. H. Sutton.—p. 392.
Id.: Some Aspects of His Genius. G. Griffiths.—p. 396.
Harvey's England: 1578-1657. Glimpses of Times, Both Lay and Medical. L. Cowlishaw.—p. 398.
*Relative Low Humidity of Atmosphere and Much Sunshine, as Causal Factor for Great Prevalence of Skin Cancer in Australia. H. Lawrence. —p. 403.

Low Humidity and Much Sunshine as Causes of Skin Cancer.—Skin cancer is said to be a very prevalent disease in Australia and is, relatively speaking, more common in Australia than in England or European countries. Lawrence's experience has been that the number of cases coming under the heading of the epithelial triad (keratosis, rodent ulcer and epitheliomas) certainly suggests that this condition of skin cancer is quite a serious matter in Australia. The percentages of incidence are: rodent ulcer, 6.82; keratosis, 4.38, and epitheliomas, 1.975, or a total percentage of 13.23. Lawrence, with others, feels that the relatively low humidity of the atmosphere in Australia probably favors the irritating effects of the solar rays in the production of keratoses, rodent ulcer and epithelioma. The humidity of the atmosphere of Australia is as low as 30, 40, 50 and 60 per cent for the greater portion of the continent and remains so for a large part of the year.

Tubercle, London

10: 1-52 (Oct.) 1928

Artificial Light Treatment at Tuberculosis Dispensaries in Administrative County of Lancaster. A. D. Brunwin, G. L. Cox and J. L. Stewart.—p. 1.
Diagnosis of Pulmonary Tuberculosis in Its Latent or Preclinical Phase. F. M. McPhedran.—p. 14.
Immunity and Allergy in Pathogenesis of Tuberculosis. A. K. Krause. —p. 22.

Bulletin de la Soc. d'Obst. et de Gynéc., Paris

17: 599-689 (July) 1928

*Cervical Stenosis Following Use of Filhos's Caustic. Brindeau and Dévé. —p. 599.
*Relation Between Age of Fetus and Degree of Development of Its Ossification. V. Cathala and J. Bardy.—p. 601.
Puerperal Peritonitis. Desnoyers and Digonnet.—p. 606.
Valvular Hydrosalpinx. Gosset, Ledoux-Lebard and C. Béclère.—p. 609.
*Pregnancy Following Roentgen Examination of Tubes with Iodized Oil. F. Lobre and J. Dalsace.—p. 612.
Retroplacental Hemorrhage. P. Brault.—p. 617.
*Liver Treatment of Severe Anemia of Pregnancy. P. Brault.—p. 619.
Transverse Septum of Vagina. P. Brault and C. Rochard.—p. 621.

Cervical Stenosis Following Use of Potassium Hydroxide-Calcium Hydroxide Mixture (Filhos's Caustic.)—Brindeau and Dévé report a case of cervical stenosis in a trigravida, aged 30, who gave a history of two difficult labors and two careful applications of a potassium hydroxide-calcium hydroxide mixture (Filhos's caustic) to the cervix for the cure of a cervical discharge after the second labor. In an examination in the third pregnancy the cervix was found to be extremely hard and to have a punctiform external orifice. The patient was allowed to enter labor. After three quarters of an hour of extremely violent contractions occurring every three minutes, the cervix showed no signs of yielding; low cesarean section was therefore performed and the cervix was dilated mechanically in order to provide for the escape of the lochia.

Relation Between Age of Fetus and Degree of Development of Ossification of Its Bones.—Before the investigations by Cathala and Bardy no proof could be given of the constancy or variability of the dates of appearance of the centers of ossification and of their development, since comparisons were always made between fetuses of uncertain intrauterine age. The authors, however, attacked the problem by studying the ossification in uniovular twins; if the degree of development of the ossification is in constant relation to the age of the fetus, uniovular twins, being necessarily of the same age, must have equally developed centers of ossification even if their weights and lengths are not equal. Marked variations in the ossification of the lower extremities of thirteen pair of uniovular twins roentgenographed shortly after birth were noted. The authors present a table showing that: 1. In equally developed uniovular twins the centers of ossification are frequently, but not always of the same dimensions in the two twins. 2. In unequally developed uniovular twins the centers of ossification occasionally are of the same dimensions but, as a rule, they are not, and in the majority of cases their development is in relation to the general development of the fetus concerned. Although in the majority of cases the date of appearance and the degree of development of the centers of ossification are in relation to the age of the fetus, this rule is not absolute. Ossification may be retarded, particularly if the fetus is underdeveloped. In fact, it is in the litigated or abnormal cases and in pathologic pregnancies, in which it is most desirable to know the age of the fetus, that uncertainty is greatest. In legal medicine the degree of ossification does not permit one to fix with certainty the age of a fetus, and the absence of ossification in the distal epiphysis of the femur of a new-born infant weighing less than 2,500 Gm. does not authorize one to say that it was not born at term.

Pregnancy Following Roentgen Examination of Fallopian Tubes by Injections of Iodized Oil.—Lobre and Dalsace noted that eight out of 115 previously sterile women became pregnant shortly after roentgen examination of their oviducts by means of injections of iodized oil.

Cure of Severe Anemia of Pregnancy by the Ingestion of Liver.—A case of severe anemia of pregnancy cured by liver treatment is reported by Brault. The patient refused to eat raw liver but did eat every day from 100 to 150 Gm. of beef liver cooked slightly in butter. In less than three weeks the patient appeared clinically cured, and blood examination made at the end of the pregnancy showed that the blood picture had become normal.

Journal de Chirurgie, Paris

32: 385-512 (Oct.) 1928

*Results of Surgical Treatment of Duodenal Ulcer. J. Okinczyc.—p. 385.
Trephination of Cranium for Traumatic Lesions. T. Alajouanine, J. Maisonnet and D. Petit-Dutaillis.—p. 397.
Spinal Anesthesia. M. Deniker.—p. 433.

Late Results of Surgical Treatment of Duodenal Ulcer.—Okinczyc states that if duodenal ulcer is, as it appears to be, a manifestation of a general disease, one must recognize the fact that the real treatment of the disease has not yet been found. All the surgical methods are only palliative and no one of them can be set up as a treatment of choice to the exclusion of the rest. All of them give sometimes good and sometimes bad results; the conditions regulating the success or failure in a given case are not always apparent. One might even ask whether these results are not, to a certain extent, dependent on the moment of intervention in the evolutionary cycle of the ulcer disease: the nearer this is to the beginning of the evolutionary cycle, the greater are the chances of failure; the nearer the end, the greater are the chances of success. However, one does not always have a criterion for determining the stage of this evolution; the duration of the ulcer is not absolute evidence. Moreover, the evolutionary cycle of the ulcer disease does not always follow a perfect curve; it frequently takes the form of a wavy line indicating successive remissions and recurrences. In reviewing the results of 197 cases of duodenal ulcer treated surgically the author found that the results of resection compared favorably with those of gastrojejunostomy: 78.56 per cent of successes and 21.42 per cent of failures followed resection, and 65.95 per cent of successes and 34.04 per cent of failures followed gastrojejunostomy. The immediate mortality, however, was higher after resection than after gastrojejunostomy.

Lyon Médical, Lyons

142: 353-384 (Sept. 23) 1928

*Aneurysm of Splenic Artery. Goulliond.—p. 353.

Surgical Treatment of Aneurysm of Splenic Artery.—Goullioud reports the case of a woman, aged 70, from whom 12 years ago, he removed an aneurysm of the splenic artery, the size of an orange. The woman still leads an active and vigorous life and enjoys good health. The author recommends the following methods for treating aneurysm of the splenic artery: simple ablation of the sac or ablation with splenectomy, depending on the location and the attachments of the sac; ligation of the trunk of the artery in its accessible portion, if one cannot do anything else or as a preliminary operation.

Marseille-Médical, Marseilles

65: 389-434 (Oct. 5) 1928

Malignant Erythema in Typhoid. Gaujoux, Rouslacroix and F. Trabuc. —p. 389.
*Endocarditis Lenta. D. Olmer and Y. Jacques.—p. 397.
*Intestinal Hemorrhage in Typhoid. Boinet and A. Raybaud.—p. 401.
*Anencephalic Monsters. A. Rathelot and J. Chosson.—p. 409.
Undulent Fever in Denmark. A. Raybaud.—p. 413.
*Secondary Bronchopulmonary Cancer. J. Chosson.—p. 416.

Endocarditis Lenta.—Olmer and Jacques believe that endocarditis lenta is a relatively common disease but one which is frequently not recognized. It is almost always fatal. Eight cases observed by one of the authors all terminated in the death of the patient. The various treatments, such as with sodium salicylate, colloid therapy, acriflavine and intravenous injections of acetarsone have no effect on its evolution.

Intestinal Hemorrhage with Syndrome of Acquired Hemophilia, in Typhoid.—Boinet and Raybaud report a fatal case of intestinal hemorrhage in a vigorous young man, aged 20, who did not give a history of previous bleedings but whose blood showed a greatly prolonged coagulation time, plasmatic coagulation, and subnormal retractility of the clot.

Anencephalic Monsters.—In the case reported by Rathelot and Chosson, a woman, aged 24, gave birth to an anencephalic monster in each of two successive pregnancies, with an interval of two years. The mother was normal, but the father presented marked signs of mental derangement.

Secondary Bronchopulmonary Cancer.—Chosson reports a case of secondary bronchopulmonary cancer which appeared in a man, aged 70, eighteen months after a cancer of the lower lip had been removed.

Paris Médical

2: 229-244 (Sept. 22) 1928

Erythema Multiforme. H. Jausion and A. Pecker.—p. 229.
*Aldrich and McClure Test in Hepatic Insufficiency. J. Heitz and Gilbert-Dreyfus.—p. 240.
*Maillard's Coefficient in Diagnosis of Hepatic Insufficiency. R. Goiffon. —p. 242.

Aldrich and McClure Test in Hepatic Insufficiency.—Heitz and Gilbert-Dreyfus performed the Aldrich and McClure test (resorption of an intradermal bulla of serum) in fifteen cases of hepatic insufficiency; the resorption was accelerated in the majority of the cases even in the absence of any edema whatever in the zone injected. They therefore believe that the tissue hydrophilia, easily demonstrated by the Aldrich and McClure test, is a disturbance which deserves a place among the signs indicative of insufficiency of the hepatic cell.

Value of Maillard's Coefficient in Diagnosis of Hepatic Insufficiency.—Goiffon believes that Maillard's coefficient (ammoniacal N : urea N + ammoniacal N) can no longer be considered as a test for disturbances in the genesis of urea; it indicates merely the variations in acidity in relation to the acids normally resulting from nitrogenous alimentation. Since this coefficient has proved to be of some clinical value in the diagnosis of hepatic insufficiency, the author proposes to replace it by a more logical ratio, total acidity: urea, which is more independent of the renal functions; it is in reality an index of acidosis, better justified by modern physiology. Its variations likewise may be caused by hepatic disequilibrium, of which it may consequently serve as an index.

2: 261-300 (Oct. 6) 1928

Neurology in 1928. A. Baudouin and H. Schaeffer.—p. 261.
*Serous Meningitis. H. Claude and A. Lamache.—p. 277.
Sympathetic Disturbances in Diabetes. André-Thomas.—p. 280.
Compressions of Inferior Spinal Nerve Roots. N. Péron.—p. 294.

Serous Meningitis.—Claude and Lamache believe that serous meningitis deserves an important place in clinical neurology. The resulting syndrome is sometimes transient, is characterized by headache and increased pressure of the cerebrospinal fluid, and can be cured by a single spinal puncture; the syndrome may also persist, evolving subacutely and intermittently and resembling brain tumor in all points except the favorable evolution with complete cure following decompression. This decompression may be produced by repeated spinal punctures, which give excellent results in diffuse serous meningitis, by ventricular punctures, or even by a decompressive trephination. The results of intravenous injections of hypertonic solutions are inconstant and transient.

Presse Médicale, Paris

36: 1281-1296 (Oct. 10) 1928

*Transverse Incision in Laparotomy. J. L. Faure.—p. 1281.
*Comprehension of Bone Pathology. R. Leriche and A. Policard.—p. 1282.
Hormones and Vitamins. C. Soula.—p. 1284.
*Injection of Oviducts. Delassus.—p. 1286.

Superiority of Median Longitudinal Incision in Laparotomy.—Faure believes that, with the exception of the cases in which one is sure of encountering only slight lesions which can easily be attacked through a transvere incision within the pubic hair line, the median longitudinal incision is always to be preferred.

Physiologic Considerations of Value in Understanding Bone Pathology—The following four fundamental facts, which should dominate all research in bone pathology, are presented by Leriche and Policard: 1. Bone should be considered as a reserve of mineral matter. If the organism is regarded as a whole, the function of the bone tissue is to permit standing and walking. If, however, one considers the bone tissue as the result of the special metabolism of certain connective tissues, it is only a reserve of mineral salts which is drawn on continuously to maintain a constant blood calcium content. It seems logical to regard a large part of bone pathology as caused by anomalies or disturbances of the mineral reserve function. 2. The laws of reparative osteogenesis in the adult dominate the anatomic evolution of bone diseases. The organism has only one way of making bone and all the diseases in which there are new ossifications must be considered from the angle of the laws of reparative osteogenesis. There is a process of vasodilatation underlying all ossification and it is only by analyzing this phenomenon and searching for its cause that one can find the nature and origin of the various diseases of ossification. 3. Bone is not only a mineral reserve but, in addition, an hematopoietic organ. Too frequently one forgets that this hematopoietic organ, the bone marrow, is in no way connected with the phenomena of ossification and with the life of the bone tissue itself: their reactions are independent. 4. The longitudinal growth of bone is purely cartilaginous and depends on a double inverse phenomenon: hypergenesis and death of cartilage. If the cartilage ceases to multiply, the longitudinal growth of the bone stops. If the cartilage ceases to die, ossification does not occur and the longitudinal growth of the bone again comes to a stop. It is only by considering these four laws that the essential nature of bone diseases will ever be understood.

Danger of Injection of Fallopian Tubes.—Delassus reports a case of localized peritonitis with abscess formation following injection of the fallopian tubes to cure sterility in a woman who had had salpingitis four years before the injection was made.

Revue Gén. de Clinique et de Thérap., Paris

42: 641-656 (Oct. 6) 1928

*Diathermy in Lupus. H. Bordier.—p. 641.
Pyloric Cancer. Delbet.—p. 644.
Cerebrospinal Meningitis. Paulus.—p. 647.

Efficacy of Diathermy in the Treatment of Lupus Vulgaris.—Bordier describes two cases of lupus vulgaris that had been treated for years without success by various methods;

both cases were cured in a short time with electrocoagulation. The author believes that electrocoagulation is the best form of treatment for the majority of cases of lupus vulgaris. One reason for the superiority of this treatment is the fact that the high temperature not only produces a change in the tissues in which the tuberculous lesion has developed but also destroys the tubercle bacilli. Another good feature of this form of treatment is the fact that the resulting scars are supple.

Archiv für Kinderheilkunde, Stuttgart

85: 1-80 (Aug. 31) 1928

*Chickenpox Immunization. K. von Késmárszky.—p. 1.
Arrangement for Facilitating Metabolic Examinations in Infants; Treatment of Erosive Dermatitis. A. Bratusch-Marrain.—p. 8.
Milk Sugar in Economy of Growing Organism. M. Steuber and A. Seifert.—p. 12.
Mineral Metabolism of Dystrophic Infants. E. Rominger and H. Meyer.—p. 23.

Chickenpox Immunization.—In fifty of fifty-one cases Késmárszky produced immunity against chickenpox by intracutaneous injection of 0.1 cc. of citrated blood from a patient with chickenpox. The blood was withdrawn within thirty-six hours of the appearance of the disease. There was no local or general reaction worth mentioning and undesirable results were not manifest. The length of the period of immunity is not known.

Archiv für klinische Chirurgie, Berlin

151: 445-650 (Sept. 19) 1928

*Chronic Ulcer of Stomach and Duodenum; Results of Gastro-Enterostomy and Resection of Stomach, Especially by Reichel's Method. E. Schwarz.—p. 445.
Symmetrical Fibroma of Palate. H. Klose and G. Gronwald.—p. 469.
*Indications for Bone Transplantation into Spinal Column in Cases of Tuberculous Spondylitis. E. König.—p. 505.
Volvulus of Cecum and Ascending Colon. E. Kunz.—p. 547.
Diagnosis of Ureteral Stones; Ureteropyelography. H. Boeminghaus.—p. 565.
Gastroscopy of Stomach Subjected to Operation. E. Hertel and H. U. Kallius.—p. 578.
*Arterial Hemorrhage into Struma. E. Haim.—p. 595.
*Significance of Alkali Reserve in Surgical Cases. E. G. V. Sköld.—p. 600.
*Heredity of Brachyphalangia. W. Birkenfeld.—p. 611.
*Mobile Duodenum. S. L. Minz.—p. 632.
*Experimental Study of Efficacy of Certain Methods of Disinfection of Hands. A. A. Smorodinzeff.—p. 640.
*Foreign Body in Abdominal Cavity, Chylous Cyst of Mesentery Containing Gauze Tampon. I. I. Genkin.—p. 646.

Results of Gastro-Enterostomy and Resection of Stomach for Chronic Peptic Ulcer.—In Schwarz' opinion the Billroth I and the Reichel resection are the only logical operations for chronic peptic ulcer of the stomach and duodenum. Reichel's operation is preferred. Riedel's operation yields very poor results. Recurring ulcers in the line of suture were observed in four cases. The majority of the patients operated on by Reichel's method remained well. In 210 Reichel resections only one case of jejunal peptic ulcer was noted. Primary resection is advocated in all cases of perforated ulcer if the patient is seen soon after the perforation. Palliative operations, such as suture and gastro-enterostomy, done in cases of perforation, necessitate a secondary radical operation in a high percentage of the cases. In cases of jejunal peptic ulcer following gastro-enterostomy and in other complications, the rational treatment is radical resection of the affected portion of the stomach, including the gastro-enterostomy by Billroth I or Reichel. Schwarz prefers splanchnic anesthesia to general anesthesia in all operations for chronic gastric and duodenal ulcer.

Osteoplastic Operations for Tuberculous Spondylitis.—König has performed the Albee operation in 108 cases. He analyzes the end-results in forty-six cases in which operation was performed at least five years ago. Eleven patients are dead; six are unimproved; six are markedly improved, and twenty-three are cured. The author prefers surgical treatment of these cases to the customary conservative treatment employed in the majority of institutions, especially when heliotherapy is not available. However, he emphasizes that operation is only one factor in the treatment and that other means of treatment must not be neglected.

Arterial Hemorrhage in Strumous Thyroid.—Haim relates the case of a man, aged 47, who, although apparently in good health and not cognizant of any lesion in his thyroid, suddenly noted the formation of a large swelling on one side of his neck, which was speedily followed by dyspnea, increasing in severity, dysphagia and severe pain in the back of the neck. A diagnosis of strumitis was made. In the absence of any inflammatory signs or reactions, Haim concluded that it was a case of hemorrhage into the thyroid. Roentgen examination disclosed a mass the size of a child's head in the neck. He operated and found that the hemorrhage came from the inferior thyroid artery. The artery was ligated and the thyroid resected. The patient made an uneventful recovery. On examination of the artery it proved to be dilated and the intima was thickened considerably. Forty-four cases of hemorrhage into the thyroid are on record in the literature, but they were of venous origin and were discovered at necropsy. Arterial hemorrhages seem to be exceedingly rare.

Significance of Alkali Reserve in Surgical Cases.—Estimation of the alkali reserve was made by Sköld in fifty-two surgical cases, but was of no significance either as a diagnostic aid or as an indication for operation. In general, the percentage was below the normal average. Of fifteen cases of goiter only one was subnormal in this respect. A figure characteristic for exophthalmic goiter was not obtained. Of fifteen cases of carcinoma only one was subnormal. A lowering of the alkalki reserve was noted irrespective of the kind of anesthesia, whether local or general, the amount of anesthetic used and the time of operation. Specific symptoms of acidosis were not noted in any case, although the alkali reserve was subnormal in twelve of the twenty cases examined after operation. In one of these cases it fell far below the accepted danger point. The value was 26.7 per cent. The reason given for this occurrence is the customary postoperative administration of one liter of a 5 per cent dextrose solution immediately after the operation and again later the same day.

Heredity of Brachyphalangia.—Of 101 cases recorded in the literature and two personal cases reported by Birkenfeld, heredity was established in forty-eight cases; in twenty-four cases it was manifestly absent and in thirty-one cases adequate data are absent. Sex does not seem to be a factor. Women were affected about one third oftener than men, and appear to transmit the deformity in about the same proportion. Transmission from male to male occurs with equal frequency as from female to female.

Duodenum Mobile.—The outstanding symptoms in the case cited by Minz were persistent, dull pain in the right hypochondrium and in the epigastrium, radiating to the right arm and scapula. In general, the symptoms were those of gallstone colic. However, all examinations, clinical and laboratory, were negative for such a diagnosis. Because of the history of an appendectomy seven years previously, and pain in the region of the duodenum, the author was inclined to a diagnosis of pericholecystitis and periduodenitis. The pains became more severe during a month of observation, requiring narcotics. Minz operated on the patient and found a duodenum mobile. He performed a duodenopylorojejunostomy—the first time, incidentally, that this operation has been done. The patient was freed from her pain and one year after the operation her condition was such that the operation appears to be fully justified. The duodenum was considerably dilated and entirely mobile throughout its length.

Disinfection of Hands.—Smorodinzeff reports on the results of an experimental study of various methods commonly employed to secure disinfection of the hands preparatory to surgical operations. The methods studied were those of Heussner, Herff, Zabludowsky-Tatarinoff, Ahlfeld, Fuerbringer and Grossich. These methods employ iodine-benzine-paraffin; alcoholic solution of acetone; a 5 per cent solution of tannin in alcohol; mercuric chloride, and iodine. The author prefers Fuerbringer's mercuric chloride method with the addition of applying a 5 per cent alcoholic solution of iodine under the finger nails. For five minutes the finger nails are scrubbed with sterile brushes, using two, and then for two and one-half minutes with a fresh sterile brush. Then the whole hand is scrubbed for three minutes with 1:1,000 mercuric chloride and 96 per cent alcohol. Then the 5 per cent iodine solution is applied thoroughly under the finger nails. He says that this method of disinfection is sufficiently efficacious to permit of

operating without the wearing of gloves. If necessity demands quick operation without gloves, a more rapid method of disinfection may be resorted to: anointing the hands with petrolatum containing from 2 to 4 per cent of formaldehyde.

Gauze Tampon in Chylous Cyst of Mesentery.—In May, 1925, Genkin's patient had been operated on for a cystic ovary. For two weeks after the operation, the patient had fever, as high as 40 C. (104 F.). She was discharged one month after the operation, being apparently in the best of health. She remained well until the winter of 1926, when she began to complain of pain in the right side of the abdomen. Soon afterward she noticed a movable swelling in the abdomen. This swelling increased in size, and the pain became more severe. There were no other symptoms. A laparotomy was performed and a chylous cyst of the mesentery was discovered and removed. When the cyst was opened it was found to contain a gauze tampon rolled into a ball and adherent to the cyst wall in places. The patient left the hospital on the twelfth day and has remained well and free from all previous symptoms.

Beiträge zur klinischen Chirurgie, Berlin

143: 599-788, 1928

Postoperative Regeneration of Blood. R. Becker and E. Schütz.—p. 637.
*Diagnosis of Sciatica. H. Fritz.—p. 652.
Isolated Luxation and Subluxation of Os Naviculare Pedis. J. Gangler. —p. 671.
Fused Kidneys Situated at Pelvic Inlet Preventing Normal Birth. R. Geinitz.—p. 709.
Formation of Irritating Vapors During Ether Anesthesia. R. Geinitz. —p. 713.
Treatment of Acute Postoperative Gastric Ileus Following Gastro-Enterostomy. H. Kolaczek.—p. 716.
Biology of Ultraviolet Rays. L. Schall and H. J. Alius.—p. 721.
*Penetrability of Intestinal Wall for Solutions, Especially in Cases of Obstruction. E. Schempp.—p. 728.
*Cauterization, the Method of Choice in Treatment of Hemorrhoids and Carbuncles. H. Neuffer.—p. 737.
*Significance of Streptococcus Problems in Surgery; Clinical Results of Serum Therapy. H. Killian.—p. 743.
*Determination of Pepsin Content of Gastric Juice as Aid in Diagnosis of Stomach Diseases. P. Rostock.—p. 770.
*Etiology of Acute Dilatation of Stomach. H. G. Zwerg.—p. 777.

Diagnosis of Sciatica.—Fritz is of the opinion that often cases are wrongly diagnosed as sciatica. He differentiates fifty conditions that simulate sciatica. Cases of pain in the back, gluteal region and leg, that have nothing whatever to do with sciatica, are mistaken for it. One difficulty is that the etiology of sciatica is not definitely established; however, there is such a clinical entity as sciatica; the diagnosis can be made and Fritz cites a number of cases illustrating the points of differentiation.

Permeability of Intestinal Wall.—Schempp has shown experimentally that when potassium ferrocyanide is injected into the bowel of the living guinea-pig, with or without intestinal obstruction, it does not pass through the wall of the bowel. Nor does it pass through the living isolated ileum segment. When the segment is dead, diffusion does take place. Following the injection of a potassium iodide solution into the lumen of the ileum, absorption by way of the peritoneal cavity does not occur. Therefore, he concludes that Schoenbauer's hypothesis of intestinal intoxication following occlusion is not tenable.

Cauterization of Hemorrhoids and Carbuncles.—Neuffer stresses the value of this form of treatment over all others. He relates his experience in eighty cases of hemorrhoids, with and without prolapse of the rectal mucosa, with not a single recurrence. He has not seen a single case of hemorrhage during or after the operation. Freedom from pain is notable. In the treatment of carbuncle, it is the method of choice. More than thirty cases were treated with most satisfactory results, far better than those obtained by excision.

Serum Treatment of Streptococcus Infections.—Killian reports favorably on the use of scarlet fever convalescent serum and various streptococcus serums in the treatment of streptococcus infections of various kinds. Its action is purely antitoxic and only indirectly curative. In erysipelas retrogression was noted in three days. Autohemotherapy, normal serum and diphtheria serum invariably yielded negative results. Cases of streptococcus infections, with toxic symptoms, are especially amenable to serum therapy. In extensive phlegmons the result is negative, except that relief from toxic symptoms is secured. Anergic conditions following measles and influenza are influenced favorably. In patients with a predisposition to urticaria, only convalescent serum should be used. Calcium preparations are preferable in patients with urticaria.

Pepsin Content of Gastric Juice as Aid in Diagnosis.—Rostock has found an estimation of the refraction index of the pepsin content of the gastric juice an aid in the diagnosis of stomach diseases. In cases of carcinoma and ulcer, there is little departure from the normal. When the ulcer is situated on or near the pylorus, the refraction index is increased; this is also true in cases of gastric resection and when a gastro-enterostomy is done, probably because of the reflux of the duodental contents. Cases of jejunal peptic ulcer, contrasted with cases of gastro-enterostomy in nonulcer cases, showed a considerable increase in pepsin content, although the acid estimations were approximately normal. This finding Rostock deems of value in the diagnosis of peptic jejunal ulcer.

Etiology of Acute Dilatation of the Stomach.—Zwerg is of the opinion that acute dilatation of the stomach is not the result of a paralysis of the nerve centers in the stomach wall that preside over the function of this viscus. This paralysis is the result of many other influences proceeding from the vagus and sympathetic nerves. The assumption that the dilatation is the result of a neurosis of the vegetative nervous system is justified. Clinical evidence tends to confirm such a belief. Irritations producing a disharmony between vagus and sympathetic cause loss of regulating influences of the vegetative nervous system, and consequently a paralysis of the motor nerve ganglions in the stomach wall. Experiments made to induce paralysis of these nerve ganglions in the absence of stomach lesions, with the view of causing acute dilatation of the stomach, comparable with that occurring clinically, failed utterly.

Deutsches Archiv für klinische Medizin, Leipzig

161: 1-128 (Aug.) 1928

*Arterial Hypertension. E. Firnbacher.—p. 1.
Clinical Importance of Measurement of Diameter of Erythrocytes. H. Günther.—p. 18.
Lactic Acid Content of Blood. M. Hochrein and R. Meier.—p. 59.
*Nondiabetic Ketonuria. A. Gottschalk.—p. 84.
*Hypertension and Blood Sugar. E. Wiechmann.—p. 92.
*Atypical Attack of Gout. Rosenblath.—p. 111.

Arterial Hypertension.—Permanent high blood pressure, Firnbacher found, can seldom be influenced other than temporarily. Labile high blood pressure, on the other hand, can frequently be brought down with any one of various means (such as bromides, nitrates, diuretics, baths and venesection), but only if physical and psychic repose can be added. He did not find any difference in the effects of carbonated baths, "pine needle" baths and ordinary warm baths, and is inclined to ascribe their blood-pressure lowering action to fatigue. The effect was in all cases only temporary. He tried treatment by artificial hyperthermia in four cases in which further indications (chronic arthritis and adiposity) existed, but the results were not lasting; he considers the treatment too severe.

Nondiabetic Ketonuria.—Gottschalk reports a case of high grade ketonuria in an adult, which was not explainable by the diet or by the existing paradoxical glycosuria of unknown origin. Diabetes was not present. A similar case in a pregnant woman was reported by him last year. He believes that in both cases the cause is not to be found in a primary limitation of the sugar-decomposing processes, but rather in a disurbance in the normal correlation between fatty acid and carbohydrate decomposition, making the amount of sugar necessary to prevent ketonuria greater than would normally be the case.

Hypertension and Blood Sugar.—In both anatomic and functional hypertension, Wiechmann found changes in the behavior of the blood sugar that suggested latent diabetes. In 256 diabetic patients he found the incidence of hypertension greater than in persons of the same age with undisturbed metabolism. The difference between the sugar content of the venous and of the arterial blood is less in persons with hypertension than in normal persons. The difference is present in the fasting condition, but is greater after ingestion of dextrose. The continued rise of the blood sugar step by step with repeated portions of sugar or of bread, which characterizes diabetes, is seen also in hypertension.

V 9
192

Atypical Attack of Gout.—Rosenblath, a retired physician, aged 69, reports his own case. He had suffered for years with occasional attacks of gout, which usually came on after long walks. Three days after returning from a walking tour, he awoke with pains in the sacrum and anterior part of the right thigh, the latter accompanied by hypesthesia. He was confined to bed almost uninterruptedly for four weeks, after which the pains ceased almost as suddenly as they had come. They were followed by attacks of gout in the feet and by severe pain in the chest. The latter could not be ascribed with certainty to embolism. He suggests as a possible explanation attacks of gout in the tissues of the pleura. The pain in the back and thigh he interprets as nerve root lesions.

Deutsche medizinische Wochenschrift, Berlin

54: 1579-1618 (Sept. 21) 1928. Partial Index

Chemotherapy in Ophthalmology. F. Schieck.—p. 1579.
*Iron Preparations. A. Bickel.—p. 1581.
Influence of Theophylline Preparations and Strophanthin on Coronary Circulation and Heart Tonus. I. Fisher, H. Guggenheimer and E. A. Müller.—p. 1584.
Pharmacologic Evaluation of Certain Digitalis Preparations. G. Joachimoglu.—p. 1585.
Action of Small Doses: Arndt-Schulz's Law and Homeopathy. K. Kötschau.—p. 1586.
Takata Ara Reaction in Cerebrospinal Fluid. R. Stern and A. Beyer.—p. 1589.
Practical Use of Vitamins. E. Nassau.—p. 1590.
Experiments in Reinoculation of Syphilitic Rabbits. W. Frei and C. F. Hahn.—p. 1593.
Balneotherapy with Special Regard to Sciatica. A. Laqueur and E. Gruner.—p. 1595.
*Treatment of Aphthous Stomatitis with Neoarsphenamine. M. Salisch.—p. 1598.

Iron Preparations.—From investigations on human beings and animals, Bickel concludes that iron can be utilized by the body as "building material" regardless of whether it is ingested in organic or inorganic compounds, but that it is utilized as "work material" only when it is ingested in an inorganic compound. If its dynamic action (stimulation of blood cell formation, growth or metabolism) is desired, it must be given in inorganic form.

Treatment of Aphthous Stomatitis with Neoarsphenamine.—In treating aphthous stomatitis with neoarsphenamine, Salisch dissolves the neoarsphenamine in glycerin and adds a drop of alcohol. This prevents rapid decomposition of the drug, and he believes also that its action is more rapid and intensive when prepared in this manner.

Deutsche Zeitschrift für Chirurgie, Leipzig

211: 281-424 (Sept.) 1928

Postoperative Infections. E. Singer and H. Edel.—p. 301.
*Internal Injuries of Knee Joint; End-Results of Operation. R. Morian.—p. 318.
Pathology of Internal Injuries of Knee Joint. B. Pfab.—p. 339.
Effect of Seasons on Hyperthyreoses. K. Hutter.—p. 346.
Successful Embolectomy for Lung Embolism. A. W. Meyer.—p. 352.
Results of Operation for Cryptorchidism. B. Maske.—p. 359.
Study of Tonus of Anal Sphincter. A. Läwen.—p. 371.
Simultaneous Occurrence of Echinococcus Infestation and Actinomycosis of Liver. J. C. Lehmann and Kahlstorf.—p. 384.
Indication for Short Circuiting Operations on Colon. W. Tönnis.—p. 397.
*Double Gallbladder. A. W. Meyer.—p. 404.
Encapsulated Chronic Fibrous Peritonitis. H. Dieterich.—p. 405.
Case of Total Resection of Stomach. E. N. Stahnke.—p. 408.
*Injection of Iodized Oil into Spinal Canal. Franz and L. Schönbauer.—p. 410.
*Gas Gangrene of Brain Following Injury to Eye. W. Schär.—p. 414.
Chemotherapy of Rat Sarcoma. L. Duschl and F. Königsberger.—p. 417.

Results of Operations for Internal Derangements of Knee Joint.—Morian reports the end-results in forty-four cases of internal derangements of the knee joint submitted to operation. Good results were obtained in thirty-six cases; poor results in eight. Of four patients with injury of the crucial ligaments, three made a good recovery. Of thirty patients with torn cartilages, twenty-four made a good recovery. Of ten patients with rice bodies in the joint, nine made a good recovery. These results are regarded as being exceptionally good, as most of these cases had been of long duration, from two to ten years, with an average of five years. None of the patients with similar conditions who had refused operation made any progress for the better. The patients were all in bad shape and incapacitated for work. Hence surgical intervention is justified in these cases.

Double Gallbladder.—Meyer removed the gallbladder from a woman, aged 55, because of stones, fever and jaundice. On opening the gallbladder it was found that there were two chambers, each lined with mucous membrane, but with only one cystic duct. An additional interesting feature was that the patient was cyanosed—a morbus ceruleus, because of a congenital anomaly of the heart.

Diagnostic Value of Iodized Oil in Spinal Lesions.—The Schönbauers injected iodized oil into the spinal canal of thirty-three patients for diagnostic purposes. Twenty of these patients were subjected to operation. In thirteen the diagnosis of tumor was confirmed; in seven adhesions were responsible for the blocking of the iodized oil. The types of tumor were: psammo-endothelioma, three cases; dural endothelioma, two cases, and one case each of large cell dural endothelioma, neuroma, hemangioma, an extramedullary tumor, lymphosarcoma, neurofibroma, neurinoma, an extradural tumor and granulation tissue. Despite the untoward symptoms produced by iodized oil and the fact that rare instances of death following injection have been reported, the authors regard it as being much safer than puncture of the ventricles. Among ninety-five cases in which iodized oil was injected, there was only one death, whereas the death rate following ventricle puncture varies between 8.2 and 10 per cent.

Gas Gangrene of Brain.—Schär relates the case of a boy who was stabbed in the eye with a dirty bean pole. He soon developed symptoms of meningitis and within twenty-four hours after the injury the orbital cavity was exenterated. The patient's condition was much improved the day after operation, but on the second day he suddenly manifested symptoms of tetanus, but without any muscle spasms or paralyses. The orbital cavity was again opened freely and fluid, pus, brain detritus and fetid gas were evacuated under high pressure. A diagnosis of brain abscess was clear. Nine hours after the onset of these symptoms the boy died. The necropsy confirmed the clinical diagnosis. The bacteriologic examination revealed a hitherto unknown gas-producing anaerobic and aerobic bacillus, pathogenic for guinea-pigs. The entire course of this case, from the time the injury was inflicted to death, was less than four days. The exact nature of the infecting organism has not yet been determined. A study is still in progress and a report is promised later.

Klinische Wochenschrift, Berlin

7: 1845-1892 (Sept. 23) 1928. Partial Index

Hormonal Sterilization of Female Animals. L. Horneffer.—p. 1845.
Osteosclerotic Anemia. I. Zadek.—p. 1848.
Action of Female Genital Hormone. E. Laqueur and S. E. de Jongh.—p. 1851.
Eperythrozoon Coccoides, New Parasite of White Mouse, Activated by Splenectomy. V. Schilling.—p. 1853.
Simple Scheme of Blood Formation. G. Seemann.—p. 1855.
Morphology and Diagnosis of Small Sella Turcica. J. Erdélyi and A. Scholtz.—p. 1857.
Irradiated Ergosterol in Treatment of Rickets. S. Wurzinger.—p. 1859.
*Treatment of Chronic Arthritis with Colloidal Silver. W. Loewenstein and K. Fee.—p. 1860.
Increase of Infant Births During and After Delivery. O. Fahlbusch.—p. 1864.
Isamine Blue Treatment of Skin Carcinoma: Reply. R. Roosen.—p. 1865.
Production of Lactic Acid After Treatment with Synthalin. H. Hirsch-Kauffmann and A. Wagner.—p. 1866.
Diagnostic Value of Glycemia and of Determination of Diastase in Acute and Chronic Diseases of Pancreas. E. Polacco and R. Pecco.—p. 1867.
Behavior of "Easily Split" Blood Iron in Presence of Carbon Monoxide, Oxygen and Hydrocyanic Acid. G. Barkan and E. Berger.—p. 1868.
Case of Neuritis of Ulnar Nerve After Inoculation with Pollen Extracts. G. Eisner.—p. 1868.

Treatment of Chronic Arthritis with Colloidal Silver.—Intravenous injections of collargol gave excellent results in fifteen cases of severe articular rheumatism treated by Loewenstein and Fee. They found, however, that large doses (close to the limits of tolerance) were necessary to give these results and two cases of severe shock in patients who had never been treated with proteins of any sort before warn that the treatment must be carried out with great caution, never in ambulatory practice and only in a clinic. The main factor in the therapeutic results does not seem to have been the influence of the fever but that of the silver. Leukocyte curves during periods of treatment are given and discussed.

Medizinische Klinik, Berlin

24: 1465-1500 (Sept. 21) 1928. Partial Index

Vegetative Nervous System and Blood. F. Glaser.—p. 1465.
Neuropsychic Processes Manifested in Bladder Disturbances. J. J. Stutzin and H. Warner.—p. 1467.
Physicians' Requirements in Diathermy Apparatus. J. Kowarschik.—p. 1470.
*Psychogenic Origin of Herpes Labialis. R. Heilig and H. Hoff.—p. 1472.
Rupture of Apparently Healthy Artery During Athletic Exercises. W. Koch.—p. 1473.
*Compression of Spinal Cord by Aortic Aneurysm. E. Stengel.—p. 1475.
Sarcinuria in Diabetes. A. Abraham.—p. 1476.
"Question of Hormonal Influence on Sex": Reply. B. Cohn.—p. 1477. Reply. F. Uhlmann.—p. 1478.
Cell Lipoid and Cell Respiration. E. Sehrt.—p. 1478.
Copper Treatment of Skin Tuberculosis and Tuberculous Ulcers. C. Waitz.—p. 1481.

Psychogenic Origin of Herpes Labialis.—Heilig and Hoff selected three women, two with a compulsive neurosis and one with psychopathic depression, who were used to having herpes appear on the lip after an unpleasant emotional experience. By animal experimentation it was determined that they had herpes virus in the nasopharynx. In hypnosis the patients were made to repeat an unpleasant emotional experience and at the same time the occurrence of herpes was suggested to them. In each of these cases the herpes appeared within forty-eight hours. Hypnotic suggestion alone failed to induce the herpes. The authors determined the opsonic index for staphylococcus and for *Bacillus coli* in the normal state and two or three hours after the emotional experience undergone during hypnosis. In all the cases there was a distinct reduction in the opsonins after the emotional experience. They conclude that the natural defense of the organism to infection is lowered by unpleasant emotional experiences.

Compression of Spinal Cord by Aortic Aneurysm.—The patient in this case was a midwife, aged 61, who became infected in the finger during delivery of a syphilitic woman twenty years before. There existed complete paralysis of the lower extremities and high grade sensory disturbance, characterized by an unusually wide anesthetic zone at the level of emergence of the third to the sixth dorsal nerves. The roentgenogram showed obstruction at the level of the fifth dorsal vertebra and erosion of the rib and of the fifth and sixth dorsal vertebrae on the left side. The cause of these changes was an aneurysm of the descending aorta, about the size of a fist, which, after eroding the vertebrae, pressed on the spinal cord. The first symptoms had been phenomena of irritation of the nerve roots at the level of the aneurysm. The picture of transverse lesion or unilateral lesion (from the anamnesis it is uncertain which) appeared suddenly. The process then progressed slowly up to the time of the examination by Stengel, about a year after the appearance of transverse lesion symptoms. A remission followed antisyphilitic treatment.

Münchener medizinische Wochenschrift, Munich

75: 1623-1662 (Sept. 21) 1928. Partial Index

*Diseases of Gastric Mucous Membrane in Patients with Lead Poisoning. K. Gutzeit.—p. 1623.
*Rupture of Uterus After Cervical Cesarean Section. K. Hellmuth.—p. 1626.
Nobel's Reaction and p_H in Normal and Pathologic Cerebrospinal Fluid. G. Halfer.—p. 1628.
*Influence of Fruit and Vegetable Diet on Viscosity of Blood. M. E. Bircher.—p. 1628.
Surgical Treatment of Toe Deformities. W. Raven.—p. 1629.
Blood Sugar Determination in Medical Practice. W. Seidel.—p. 1630.
*Toxic Action of Milk and Other Substances Exposed to Ultraviolet Rays. R. Degkwitz.—p. 1631.
Puerperal Sepsis. H. Schottmüller.—p. 1634.

Diseases of Gastric Mucous Membrane in Patients with Lead Poisoning.—Gutzeit calls attention to gastritis as a frequent manifestation of lead poisoning. In fifteen cases hypertrophic gastritis was found nine times, superficial catarrh four times and atrophic changes twice. The tendency to superficial defects in the mucous membrane was present in nearly all the cases, but true peptic ulcer was found in only four. The inflammation of the gastric mucous membrane seems to be due not so much to direct contact with the lead as to the toxic action of the absorbed metal. The gastritis may be present after all other signs of lead poisoning have disappeared, and since gastritis may be manifested by general nervous symptoms only, the stomach should be examined carefully in all cases in which compensation for lead poisoning is in dispute.

Rupture of Uterus After Cervical Cesarean Section.—From an experience with three cases of spontaneous rupture of the uterus in the scar of cervical or intraperitoneal deep cesarean section, Hellmuth warns that every woman who has had an abdominal delivery must be regarded as liable to rupture of the uterus in later childbirths. The liability is greater if there have been any disturbances in the healing of the uterine wound. In the three cases reported there were slight rises of temperature in the puerperium after the cesarean section. In one of the cases (placenta praevia) the incision was through the site of the placenta. In the next pregnancy the placenta was again inserted in the region of the wound. Patients with symptoms of placenta praevia who have had a cesarean section (in the cervix or corpus) for a previous placenta praevia should have hospital observation and care.

Influence of Fruit and Vegetable Diet on the Viscosity of Blood.—Bircher found that a fruit and vegetable diet, largely raw, carried out for from four to six weeks, acted to bring a high or low viscosity of the blood to normal.

Toxic Action of Milk and Other Substances Exposed to Ultraviolet Rays.—Degkwitz deprecates the expressions of alarm uttered in many quarters over the danger from irradiated milk. For prophylactic purposes milk may be sold which contains only a certain percentage of irradiated milk. This would meet the objection of vitamin deficiency from a possible overdosage of irradiated milk. He found that ordinary olive oil added to the usual diet in the amount of 0.5 cc. daily produced necrosis of the liver and injury to the kidneys in guinea-pigs. This, he considers, disposes of the value for human beings of Reyher's observation that irradiated substances have a toxic action on guinea-pigs. Degkwitz never found nitrites in the milk, even after repeated irradiation for long periods. For nine months in a clinic of 200 beds he has given irradiated milk to children of various constitutions and with all sorts of diseases, including tuberculosis. He has not seen any untoward by-effects from the use either of irradiated milk alone or of irradiated milk mixed with ordinary milk. It is important for the prophylaxis of rickets that the price of irradiated milk be brought within reach of the masses.

Wiener klinische Wochenschrift, Vienna

41: 1333-1360 (Sept. 20) 1928

Operations for Prognathism. H. Pichler.—p. 1333.
*Influence of Mode of Administration on Therapeutic Effects of Specific Medicines. K. Ullmann.—p. 1334.
*Scarlet Fever Prophylaxis by Therapeutic Serum. F. Basch.—p. 1339.
*Pathologic Researches in Discrete Pulmonary Tuberculosis of Adults. S. Puder.—p. 1340.
New Methods of Counting Thrombocytes. E. Kolozs.—p. 1342.
Hormone Therapy. A. Fröhlich.—p. 1344.
Suprarenals of Bony Fish. R. Baecker.—p. 1348.
"Cirrhoses" of Liver. O. Weltmann.——p. 1349. C'en.
Inoculation of the New-Born Against Tuberculosis with B C G: Reply. A. Ascoli.—p. 1351.
Recognition of Pulmonary Tuberculosis at the Start. Burkard.—p. 1352.
Diseases of Ear in Childhood. R. Leidler.—p. 1354.

Influence of Mode of Administration on Therapeutic Effects of Specific Medicines.—The effect of medicine introduced into the subcutaneous tissue is slower and more lasting, Ullmann says, than that of medicine introduced into the muscle. The effect is, of course, most rapid and least lasting when the drug is injected directly into the blood stream. Accidents for which the size of the dose is blamed are frequently due rather to an irrational mode of administration and to lack of understanding of the possibilities of removal or detoxification of the offending substance. An habitual user of arsenic by mouth in pill or powder form (white arsenic) is habituated only so far as this mode of administration is concerned. He might be killed by a dose of arsenic given intracutaneously that would have no effect taken in his usual way, since the habituation in his case is limited to the intestinal endothelium, which no longer absorbs the poison. Solution of potassium arsenite (Fowler's solution) given perorally does not lead to habituation but to arsenic-fastness, which speaks for the parasitic origin of the skin diseases in which it is effective. The subcutaneous or intramuscular routes should not be used for trivalent arsenic prep-

arations since, introduced in this manner, they cannot be removed or detoxified. For the quinquivalent arsenic preparations, on the other hand, the subcutaneous route is the best; given intravenously their stay in the body is too brief, and given by mouth they are highly disagreeable. Certain infectious warts which do not yield to arsenic or mercury given intravenously disappear rapidly and permanently when these drugs are given by mouth.

Scarlet Fever Prophylaxis by Therapeutic Serum: Dosage.—Basch found that 1 cc. of serum per kilogram of body weight was required to change a positive to a negative Dick reaction. With this dose he was able to obtain negative reactions in 85 per cent of ninety-five children.

Pathologic Researches in Discrete Pulmonary Tuberculosis of Adults.—Puder examined the lungs in 238 cadavers of adults who had not died of tuberculosis or had a severe progressive pulmonary tuberculosis. Circumscribed, parenchymatous foci of macroscopically typical tuberculous structure, not larger than a pigeon's egg, were present in 24 per cent of the cases. They were found in the apexes almost exclusively. It appears that apical tuberculosis is not so frequent as has been assumed by many. Uncicatrized caseous masses, even caverns, were present with foci no larger than a pea, which speaks against the harmlessness of these "abortive" cases of tuberculosis. These small foci would be demonstrable by physical diagnosis only under certain circumstances. The doubtful, so-called inactive apical catarrhs demonstrated by the "finer" physical diagnosis would seem to deserve more attention than they usually receive.

Zeitschrift für Krebsforschung, Berlin

27: 295-416 (Aug. 24) 1928

*Influence of Cholates on Tumor Growth. V. E. Mertens.—p. 295.
Investigations with Cancer-Inducing Agents. C. C. Twort and H. R. Ing.—p. 308.
Action of Tar on Intestinal Mucous Membrane of Rabbit. I. I. Genkin and J. D. Dmitruk.—p. 352.
*Mechanism of Action of Isamine Blue on Malignant Tumors. R. Roosen.—p. 359.
*Etiology of Cancer of Uterus. G. G. Ter-Gabrielian.—p. 362.
*Action of Peroxides on Mouse Carcinoma. J. Magat.—p. 378.
*Influence of Spleen on Tumor Growth. B. E. Brüda.—p. 380.
*Rôle of Distomatosis in Origin of Cancer of Liver and Pancreas. M. G. Ruditzky.—p. 402.

Influence of Cholates on Tumor Growth.—Mertens' researches failed to confirm the view that lowering the surface tension favors tumor growth. Treatment with cholates did not stimulate the growth of tar tumors or spontaneous tumors in white mice. The influence of sodium cholate in rabbits was to inhibit new growths. Under certain conditions, it led to the development of firm connective tissue.

Mechanism of Action of Isamine Blue on Malignant Tumors.—Roosen believes that isamine blue injures the conditions for growth of the tumor cell by withdrawing water from the tumor.

Etiology of Cancer of Uterus.—One hundred and ninety-four patients with cancer of the uterus were studied by Ter-Gabrielian. In 35.0 per cent symptoms appeared before, in 9.7 per cent during and in 55.3 per cent after the menopause. Frequent normal childbirths did not appear as an etiologic factor, but complications of labor and artificial and incomplete abortions appeared to favor the development of carcinoma. The individual predisposition, which is an essential factor, can, he believes, be acquired from severe infectious diseases, acute or chronic, or from hard physical or mental work carried on for many years on an insufficient diet.

Action of Peroxides on Mouse Carcinoma.—Magat presents a preliminary report on experiments in the treatment of Ehrlich's mouse adenocarcinoma with organic peroxides in combination with phosphatides. In twenty-three of 125 mice the tumor disappeared. The treatment is now being tried out on human beings.

Influence of Spleen on Tumor Growth.—Experiments in vitro showed that tumor tissue grew more intensively in the plasma of splenectomized animals (rats and mice) than in that of normal animals.

Rôle of Distomatosis in Origin of Cancer of Liver and Pancreas.—Ruditzky reports a case of carcinoma involving the liver and the pancreas, probably originating in the choledochus, associated with a severe *Distoma* infestation. A brother of the patient had died of carcinoma of the stomach. The parasites had beyond doubt been in the bile passages for many years and without giving rise to noticeable symptoms had caused thickening of the walls, proliferation of epithelium and the formation of glandular offshoots (new-formed bile passages) in the wall of the duct. At necropsy the choledochus was found greatly dilated and signs of engorgement and inflammation were present.

Zentralblatt für Chirurgie, Leipzig

55: 2369-2432 (Sept. 22) 1928

Dextrose Solution as Hemostatic: L. Schönhauer.—p. 2378.
Enchondroma of Deep Subcutaneous Fascia. D. Goldmann.—p. 2379.
*New Method of Plastic Operation on Breast. H. Biesenberger.—p. 2382.
*Congenital Pseudarthrosis of Tibia; Surgical Treatment; Formation of New Pseudarthrosis. F. Loeffler.—p. 2387.
Suture of Bone; New Instrument. F. Schede.—p. 2389.
Determination of Density of Bone in Roentgenogram. E. Bettmann.—p. 2391.
Diagnosis and Treatment of Foreign Bodies in Trachea Without Roentgenoscopy or Bronchoscopy. H. Krekel.—p. 2396.

Plastic Operation for Hypertrophied Breast.—Biesenberger describes a plastic operation for hanging hypertrophied breast which has for its main object a satisfactory cosmetic result. This is secured by transplanting the nipple and the surrounding areola. A circumscribing incision of the areola is made, and a few sutures secure it in place. A second circumscribing incision is made about 1 cm. beyond the first. It is shaped like a comma, the point being directed downward. The skin is freed from the breast tissue and fat and is retracted or reflected until the entire breast is exposed. The outer half of the breast is then resected, including the breast parenchyma, by means of an S shaped incision beginning at the axillary margin and extending downward to the attachment of the breast to the chest wall. The remaining portion of the breast is then restored to its normal position and the nipple and areola are sutured back into place. The result is said to be exceedingly satisfactory. The subsequent lactating function of the breast is not disturbed as the ducts have not been interfered with in any way.

Treatment of Congenital Pseudarthrosis.—Loeffler relates the case of a boy, aged 5 years, who had a congenital pseudarthrosis of the tibia. At operation, the pseudarthrosis was resected and a Lane plate applied. The wound healed perfectly and after eight weeks the plaster of paris cast was removed. The leg apparently was in good shape. To make sure that it would continue so, a steel brace was applied. The boy was seen at six months intervals thereafter. Two years after the operation healing was perfect, the bone ends had united firmly, but at the upper end of the bone plate a new pseudarthrosis had developed, with slight callus formation, but sufficient to give the leg stability. The author does not offer any explanation of this case.

55: 2433-2496 (Sept. 29) 1928

*Treatment of Ingrown Toe-Nail. K. Reschke.—p. 2435.
Roentgen Diagnosis of Acute Pancreatitis. H. Bronner.—p. 2436.
*Calculus of Pancreas. A. W. Meyer.—p. 2440.
*Use of Antitoxic Colon Bacillus Serum in Peritonitis. H. Kohler.—p. 2441.
Etiology of Intra-Abdominal Ovarian Hemorrhages. R. Geinitz.—p. 2444.
Resection of Stomach for Perforated Gastric and Duodenal Ulcer. G. Hromada.—p. 2449.
Anesthesia of Brachial Plexus. H. Hilarowicz.—p. 2450.

Treatment of Ingrown Toe-Nail.—Reschke makes the usual wedge shaped excision of tissue at the side of the nail, and then, in order to expedite healing, he implants a Thiersch skin graft into the sulcus. A roll of iodoform gauze and adhesive strips secure the graft in place. The first dressing is not changed until the seventh day, when a plain dressing is applied. The author has never seen an instance of infection following this operation.

Calculus of Pancreas.—Meyer relates the case of a patient who complained of indefinite abdominal symptoms, such as a feeling of pressure and flatus. Colic was absent. The stool contained much fat and with each bowel movement an oily yellow fluid was passed, also with the flatus. Roentgen examination disclosed a stone in the pancreas, extending from one side of

the spinal column across to the other side. It was removed. Its length was about 6 cm.; its shape, curved like a scimitar with a handle-like piece at one end and broadened at the other. The patient made an uneventful recovery and is rid of all symptoms. The author suggests that pancreatic stone be kept in mind in cases of indefinite abdominal symptoms.

Use of Antitoxic Colon Bacillus Serum in Peritonitis.—Kohler has used colon bacillus serum in fourteen cases of peritonitis with good results. When peritonitis is suspected (with perforated appendix, etc.), 1 cc. of serum is injected intramuscularly one-half hour before operation. After the lapse of fifteen or thirty minutes, that is, immediately after the termination of the operation, another dose of serum may be injected without fear of causing anaphylactic symptoms. The age of the patient and the severity of the case will determine the size of the dose. This will vary from 25 to 100 cc. The injection is now made intravenously. The dose may be repeated if necessary. The author has never noted any untoward result. Eight of his cases were caused by perforation of the appendix or gangrene of the small intestine. All of the patients recovered. Following the injection, the general condition of the patient was improved immediately; he became more quiet; did not complain of thirst, and the frequency of the pulse was markedly lessened. The temperature, however, was not influenced in any way, nor was the course of the suppuration. But there was total absence of any toxic heart symptoms, and the cardiac state of the patient was a most satisfactory one. Intestinal peristalsis remained unaffected. In short, the action of the serum is wholly antitoxic. Encysted suppurations are not affected by the serum; that is, cases without appreciable toxic symptoms.

Zentralblatt für Gynäkologie, Leipzig

52: 2265-2328 (Sept. 8) 1928

Congenital and Acquired Ureteral Reflux. O. Köster.—p. 2266.
*Influence of Prolapse on Urinary Tract. O. Brakemann.—p. 2272.
*Purpura of Bladder. B. Ottow.—p. 2285.
Roentgenography of Bladder. H. Kamniker.—p. 2293.
Injuries to Bladder from Catheterization. B. Liegner.—p. 2297.
Preoperative and Postoperative Treatment of Genital Fistulas. E. Fischer. —p. 2299.

Influence of Prolapse on Urinary Tract.—Brakemann calls attention to the dilatation of the renal pelvis and ureters, from constriction by the two levator arms (musculi pubococcyei), that may follow prolapse of the uterus. Before operation for prolapse, the urinary tract should be examined and any dilatations found should be removed by the wearing of an appliance, or by rest in bed after reposition of the prolapse, to avoid the danger of infection of residual urine.

Purpura of the Bladder.—A woman, aged 37, with a strongly marked hemorrhagic tendency, began to discharge a great deal of blood in the urine. Cystoscopy showed extensive hematomas of the vesical mucous membrane. There were no signs of inflammation. The patient improved slowly under roentgen irradiation of the spleen and administration of calcium. Ulcers did not develop. Ottow believes that purpura of the bladder is not so rare as is generally supposed, but that it seldom reaches the urologist. A bibliography is given.

Zentralblatt für innere Medizin, Leipzig

49: 873-888 (Sept. 15) 1928

*Cardiac Asthma. F. Brunn.—p. 873. C'td.

49: 889-920 (Sept. 22) 1928

*Cardiac Asthma. F. Brunn.—p. 890. C'cn.

Cardiac Asthma.—In the differential diagnosis of cardiac asthma, Brunn calls attention to the paroxysmal dyspnea or polypnea which sometimes occurs in chronic nephritis and in hypertension, and to cerebral or centrogenic dyspnea, in which cyanosis is absent and there are cerebral disturbances, said to be due to spasms of the vessels of the brain. Solution of pituitary and morphine are effective remedies in the attack of cardiac asthma. For prevention, the evening meal should be taken early and the diet should be dry even in the absence of visible edema. Diuretics may be required. The patient should be weighed regularly for the detection of accumulating fluid. He suggests that the exciting factor of the attack is a stream of fluid pouring into the blood from the tissues. The stream must pass through the capillaries of the lungs, where it is dammed back because conditions which normally would lead to excretion through the kidneys are disturbed. This explains the large excretion of urine which usually follows the attack and it explains the relief obtained from solution of pituitary during the attack; for solution of pituitary, as the author found in experiments on frogs, acts to retain fluid in the tissues. Morphine, he believes, acts on the same center as does solution of pituitary.

Nederlandsch Tijdschrift v. Geneeskunde, Haarlem

72: 3975-4074 (Aug. 18) 1928

Indications for Hospital Delivery. P. C. T. van der Hoeven.—p. 3976.
*Edema Theory of Beriberi. J. Mebius.—p. 3985.
Affective Epileptic Attacks. E. A. D. E. Carp.—p. 4004.
Variations in Development of Spinal Column. R. J. Harrenstein.—p. 4011.
*Lymphatic Reaction Following Chickenpox. A. van Westrienen.—p. 4015.
Hemorrhage from Ulcer in Meckel's Diverticulum. W. C. Meiss.—p. 4020.

Edema Theory of Beriberi.—In three cases of beriberi Mebius found slight intracellular edema in the muscle of the right side of the heart. He believes that this edema is to be connected with the avitaminosis. Longitudinal striation in the heart muscle cells was very distinct, which he believes was owing to swelling of the bundles of fibrils from absorption of water. Transverse striation was less distinct than normal. Theoretical considerations are brought forward to show that edematous muscle tissue does not present distinct transverse striation. The excess water appears to be stored chiefly in the anisotropic (or dark) bands. This fact embarrasses contraction, since the anisotropic tissue, holding so much water already, is unable to take up more than a portion of the water set free by the isotropic tissue. Contraction is incomplete and the heart is imperfectly emptied. When the anisotropic tissue becomes saturated with water, paralysis of the heart is imminent. Mebius believes that this hydropic degeneration of the heart muscle is not secondary to nerve degeneration but primary. The various phenomena of beriberi are taken up one by one and explained according to the theory of primary injury to the contractile substance.

Lymphatic Reaction Following Chickenpox.—Two weeks after an attack of chickenpox, a child, aged 6, had a leukocytosis of 22,000 with 80 per cent lymphocytes. The spleen and liver were greatly enlarged, and there were occasional elevations of temperature up to 39 C. The lymph glands were not swollen. Lymphatic leukemia was feared. Five days later the number of leukocytes had fallen to 6,800 and the percentage of lymphocytes had risen to 85. A week later the lymphocytes began to decrease, the glands of the neck now began to swell, eosinophils appeared in the blood in large numbers, and the spleen could no longer be felt. The liver remained enlarged for a considerable time longer. Van Westrienen has found no other case in the literature of postinfectious lymphatic reaction following chickenpox.

72: 4075-4174 (Aug. 25) 1928

Delusions of Schizophrenia: I. G. Jelgersma.—p. 4076.
Monocular Diplopia. G. J. Schoute.—p. 4086.
Heredity in Paresis. A. Hutter.—p. 4100.
*Blood Transfusion in Patient with Auto-Agglutination. H. D. E. Milders. —p. 4108.
Treatment of Atrophic Cirrhosis of Liver with Calcium Chloride. J. J. De Jong and A. P. Daniels.—p. 4111.
Tumor of Spinal Cord with Course Simulating Sciatica and Without Sensory Disturbances. A. Biemond.—p. 4116.

Blood Transfusion in Patient with Auto-Agglutination.—Milders' patient had cirrhosis of the liver. A severe internal hemorrhage made blood transfusion necessary. The patient belonged to group O. A donor was found in a brother whose blood group was the same, but when, before operation, the two bloods were brought together, agglutination took place. Furthermore, the patient's serum was found to agglutinate his own blood cells. Pseudo-agglutination was thought of, but ruled out. The patient's serum was then tried out with the blood of other persons belonging to group O. Agglutination took place in every case. The examinations were repeated in a moist chamber at a temperature of 37 C. Under these conditions the agglutinations no longer took place. The transfusion was carried out and there were no untoward effects. The patient was twice reexamined, two months and five months, respectively, after the transfusion. The phenomenon of auto-agglutination was unchanged. It was found in three other patients with cirrhosis of the liver; in one the blood cells were agglutinated by the ascites fluid as well as by the serum.